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Murray Ultimatum Interests Industry

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Shutdown in Oklahoma Would Affect 383,000 Bbls. Daily. Voluntary Movement Is Strengthening Price Structure

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

Overshadowing other developments was the statement issued on Tuesday of this week by Gov. William H. Murray of Oklahoma that he will shut in every well in the State, except stripper wells making 25 barrels or less per day, unless major purchasing companies increase the price of crude oil to $1 or more per barrel this week. He also asserted, if it is found necessary to enforce this order and shut down the wells "it will take more than a price of $1 a barrel before I will permit the wells to be reopened." While some oil company executives expressed the opinion Governor Murray might not go through with his plan, it is felt the chief executive of Oklahoma is the type of man who will go the limit to achieve his object and it will not be surprising if he does issue a shutdown order.

The potential production of flush fields in Oklahoma is placed at 8,533,000 barrels daily with an allowable output of 383,000 barrels. This production of 383,000 barrels daily would be closed in by a shutdown order of the governor. However, the voluntary shutdown movement of producers has reduced the State's output considerably, Oklahoma City being allowed 200,000 barrels daily and averaging 111,500 barrels daily last week. The output of that pool this week probably will be below that figure although it likely would register a substantial increase the first week of August when producers would be permitted to produce their August allowable.

Texas broke all previous records in the petroleum industry last week when it produced 1,078,148 barrels daily. This is the first time in history that any state has averaged 1,000,000 barrels a day.

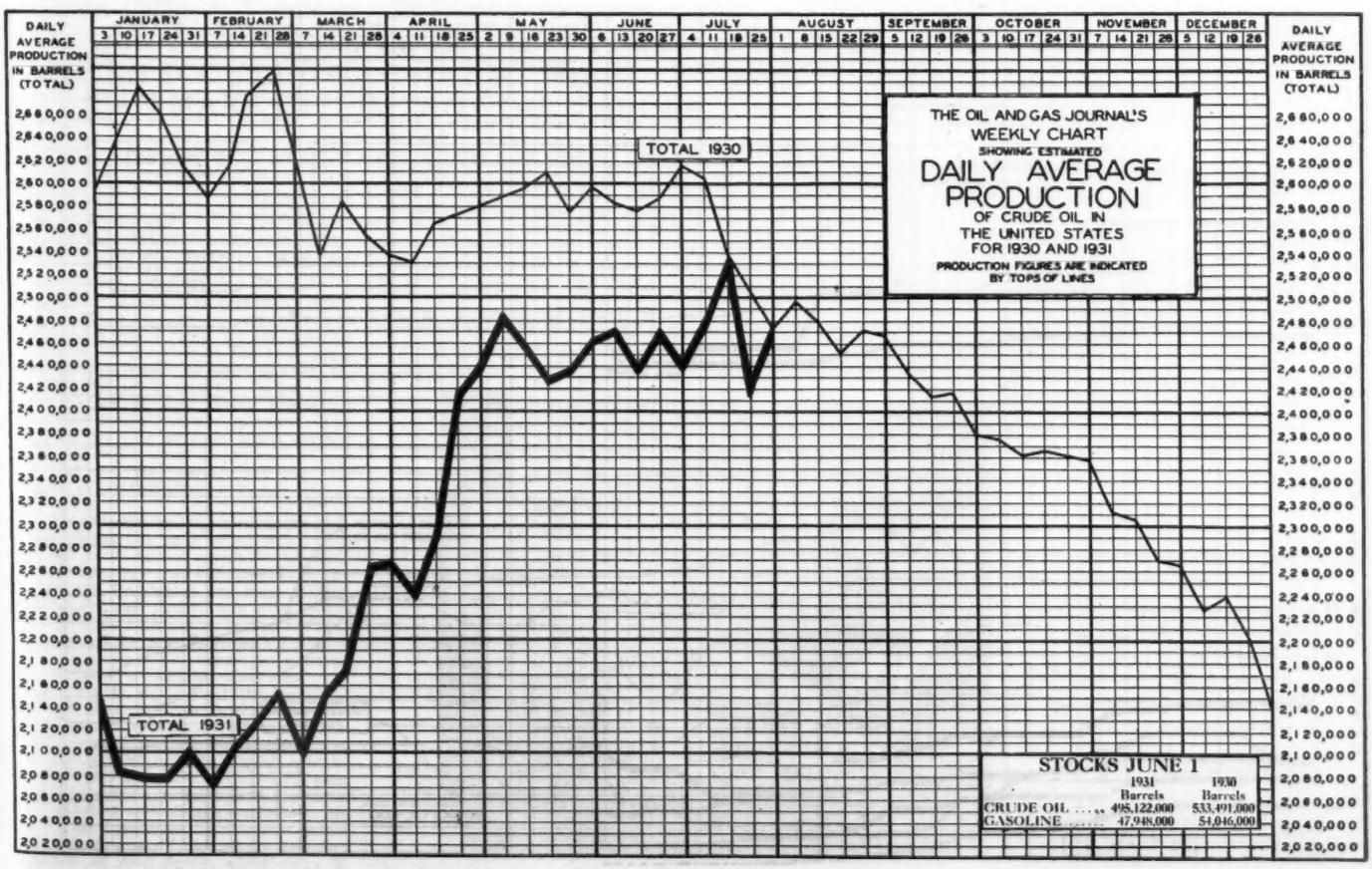
The posting of a flat price of 50 cents a barrel for Oklahoma and Kansas crude it buys by the Sinclair Refining Co. is indicative of the crude oil price trend. The voluntary shutdown movement of producers is getting results and will further strengthen the crude oil price structure if continued. Crude oil prices will go to $1 a barrel very quickly if producers simply shut down their wells and refuse to sell their production for less. The crude is needed and a fair price can be secured easily through this means.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended July 25 and a comparison with the previous week follows:

	July 25	July 18
Oklahoma—		
Oklahoma City	111,595	144,130
Seminole-St. Louis	146 015	145,915
Remainder of State	224,035	230,390
Total Oklahoma	481,645	520,435
East Texas—		
Kilgore	212,012	170,586
Lathrop	111,219	91,314
Joiner	181,715	146,925
Total East Texas	504,946	408,825
West Texas	206,002	205,409
North Central Texas	78,881	84,424
Texas Panhandle	55,742	57,721
East Central Texas	42,350	33,925
North Louisiana	33,440	33,925
Arkansas	40,585	41,070
Kansas	97,220	99,315
Total Mid-Continent area	1,540,811	1,484,599
Gulf Coast	149,731	152,571
Southwest Texas	63,496	64,146
Eastern	107,000	107,000
Rocky Mountain area	95,973	95,127
California—		
Santa Fe Springs	62,500	62,750
Long Beach	73,750	74,000
Playa Del Rey	24,000	24,500
Elwood	26,500	26,500
Kettleman Hills	74,000	82,000
Remainder of State	259,500	257,500
Total California	520,250	527,250
Total United States	2,477,261	2,430,693

→ Increase 46,568 Bbls. Daily ←



Oklahoma Gasoline Prices Advance

Upward Trend in Motor Fuels Again Gets Under Way With U. S. Motor Grade at Low of 3 Cents

By C. O. Willson

After holding firm for a period of two weeks following an advance in early July, refinery gasolines in Oklahoma and other Mid-Continent and Middle West areas again advanced during the past few days. The advance despite the efforts made by many buyers to secure price concessions over the remainder of July and for August delivery reflects the strong statistical situation of the product.

The U. S. Motor grade of gasoline in Oklahoma advanced to a low of 3 cents the first of the week with most of the refiners in the State quoting 3¼ or 3⅜ cents. Most of the refiners in competitive areas were quoting on the same basis so that the market generally presented a strong front both for spot shipments and delivery over August.

The advance in refinery gasolines was accompanied by an even greater advance in natural gasolines. The shut down of wells by producers particularly in the Oklahoma City Field has materially reduced the current production of natural gasoline and the manufacturers have found themselves in a stronger position than they anticipated earlier in the month. Grade AA appeared to be established at a low of 2½ cents in Oklahoma on Tuesday and one-fourth cent lower in Texas. Due to the heavy demand and limited supply many of the trade are predicting that natural gasoline prices will move up to the U. S. Motor level early in August and stay there at least through the month.

Fewer Concessions

Although there is less inclination on the part of sellers to give price concessions in other products of the refinery list it cannot be said that there has been any improvement in general quotations. With the gasoline market strong and an upward trend in posted crude oil prices, market observers believe that quotations on practically all products in Oklahoma are on bottom and any change in the immediate future will be upward.

There continues to be more inquiries for low cold test gas oils and distillates of low flash. High gravity low cold test fuel oils are in demand and these products can now be said to be firm. As explained in these columns in recent issues there never has been any large surplus of these grades despite the excessive quantities of high cold test material.

With the season of consumption for low cold test fuels near and an expectation of some increase over last summer, there are many buyers in the market. Some have endeavored to contract on a flat basis at a price in line with the present market. A few weeks ago, some sellers might have looked with favor on such a contract but now they generally insist on a contract which will give them the benefit of any future advances in the spot market. Some contracts are being made based on published prices on date of shipment.

Crude Oil Situation

The almost daily shifts in the crude oil markets of the Mid-Continent as posted by the major buyers are being watched closely by the refinery operators. Some concern is expressed by the refiners as to where the crude price advances will stop. Both large and small refinery operators in Oklahoma and other Mid-Continent states were certain that the low prices posted early in the month could not be maintained and general advances were expected. However, many now fear that the postings will go to the other extreme and crude prices will be established out of line with the prevailing refinery market. Some improvement is to be expected in the latter market but it probably will be largely confined to gasoline for the immediate future.

There is no expectation that refinery gasoline prices can be advanced to take care of $1 per barrel crude oil at Oklahoma wells which is the immediate objective of the independent crude oil pro-

(Continued on Page 168)

REFINED MARKET BAROMETER

A better tone to refined markets generally was reported from all the principal refining areas during the past week with the exception of California. In the West Coast uncertainty continues as to the ability of the major refiners to maintain the advances in gasoline tank wagon and service station prices recently established. Any decline in these prices will be reflected in the refinery market. In the remaining areas, the market pointed upward, higher prices becoming effective in the Mid-Continent and Middle West following crude oil price advances. Export gasoline prices for the first time in several months also reflected strength. No price changes of general importance reported in kerosene. Natural gasoline prices higher in Mid-Continent. Fuels, except special grades unchanged. More inquiries for furnace oil. Bright stocks, steam refined stocks and some grades of neutrals stronger in eastern states with no change in western and Gulf Coast market. Prices on wax stronger in East and weaker in Mid-Continent.

Mid-Continent—Refinery gasoline and natural prices advance in all areas. Kerosene unchanged. Better demand for low cold test fuels, gas oils and furnace oils. No change in lubricants. Wax prices lower.

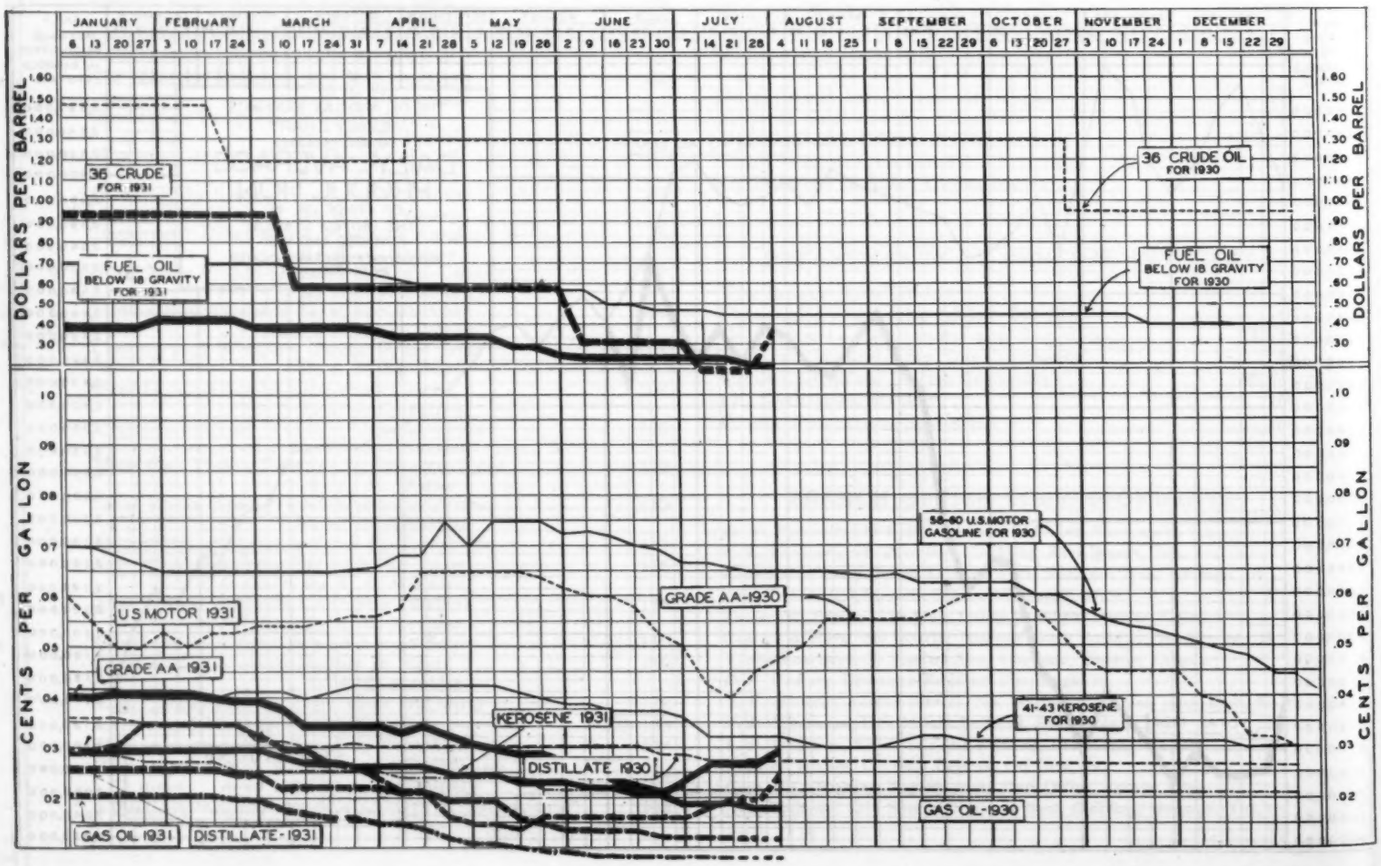
East Coast—General firming-up in prices. Expect better gasoline market early in August. Routine trading in Bunker oil and gas oil. Diesel oil market quiet. Better demand for cylinder oils. More inquiries for wax. Export market, particularly gasoline, more active.

Chicago—Better tone to market. Gasoline price advances. Kerosene dull. More buying in prospect for fuel oil and gas oil.

Pennsylvania—Gasoline market generally firm with higher prices in some grades. Steam refined stocks and bright stock prices advance with strong demand. Other products unchanged.

Gulf Coast—Export and domestic gasoline market stronger following crude oil price advances. Fuel oil unchanged. Less price cutting in pale and red neutral oils.

California—Considerable concern regarding refinery gasoline market due to conditions in retail market. Other products unchanged.



Legislators Probe Texas Oil Situation

Committees of Senate and House Question Governor and Leaders in Petroleum Industry in Effort to Improve Conditions

By Special Correspondent

AUSTIN, Tex., July 28.—The Texas legislature today reached the middle of the special session called to pass on conservation statutes, with hearings on conditions of the oil industry under way in both branches, scheduled to last into Wednesday at least before either house begins consideration of the new conservation commission and enforcement bills pending.

Witnesses before the legislature have included Gov. Ross S. Sterling, founder of the Humble Oil & Refining Co., W. S. Farish, president of the Humble company, and R. C. Holmes, president of The Texas Corporation, all members of the Texas Railroad Commission which now issues proration orders, and numerous others. Governor Sterling has testified before the Senate and was among witnesses in prospect before the House today. Underwood Nazro, of the Gulf Oil Corp., was invited to appear before both houses. The session will expire August 13.

Outcome of the effort to create a new conservation commission, to redefine waste and to provide a constitutional law were highly uncertain. Mr. Holmes and Mr. Farish have testified supporting new conservation measures and a new nonpolitical commission to enforce them. R. L. Batts, chairman of the University board of regents, has similarly testified, in advocating measures to stop excessive waste of gas in producing Reagan County oil on University land.

The House listed as its Tuesday witnesses Governor Sterling, Mr. Nazro, E. C. Eddleman, Wichita Falls; J. Lewis Thompson, Houston; C. L. Brachfield, East Texas; Robert S. Hardwicke, attorney for the central proration committee, and either Chairman C. V. Terrell or Commissioner Lon A. Smith of the Railroad Commission.

Want to Answer Pat Neff

The Railroad Commissioners requested an opportunity to answer critical testimony of former governor Pat M. Neff, their minority colleague, who charged them with "physical inactivity, mental inertness, following the line of least resistance, in prorating only those who wanted to be prorated—without an intelligent gesture toward proration." Commissioner Smith answered in a protest against withdrawing the administrative power from the hands of the elected commission.

Senate witnesses for Tuesday included Mr. Nazro, Ben Belt of the Gulf company, and John R. Naylor, a Fort Worth newspaper oil editor. H. F. Sinclair was desired as a witness, but has not been summoned so far, the House was informed.

House witnesses Monday were W. R. Boyd, Jr., executive vice president of the American Petroleum Institute, New York; E. B. Swanson, economist of the U. S. Bureau of Mines; Walter A. Duffy, East Texas producer, and Joe Danciger, Independent producer, holder of one of the first injunction orders against the Railroad Commission.

Senate witnesses included Ed R. Mayer, Amarillo independent; Walter A. Duffy, East Texas independent, and Henry Pennington, San Antonio independent.

Mr. Pennington charged that the special session had been forced by activities of the majors who sent a lot of telegrams stirring up the demand for it. Mr. Danciger said he was forced into court to protect himself. He said proration has been unfair so far; pipe line rates have been unjust all the time, and he claimed, a graduated tax would hold down the big producers.

Violation of Rules Blamed

Mr. Boyd testified severance of the pipe lines from the operating companies would do no good, and separating the

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GOV. MURRAY WILL SHUT IN ALL WELLS UNLESS OKLAHOMA PRICE IS MADE $1.00

Unless the price of crude oil in Oklahoma is increased by the major purchasers to $1 or more a barrel this week, Gov. William H. Murray of Oklahoma will order every well in the State, except stripper wells, shut in completely and, if necessary, will establish martial law in the State and call out the National Guard to enforce his order. In a statement to The Oil and Gas Journal, Governor Murray said if the producers in Oklahoma were forced to shut in their wells because of failure of the purchasers to establish a price of $1 or more per barrel, the purchasers will have to pay more than $1 a barrel before he (Governor Murray) will permit the wells to be reopened. He said he did not care to say at this time just how much more than a dollar a barrel he would consider a fair price before he would rescind his order.

In the matter of stripper wells, Governor Murray said he would include in this class, which would be exempted from the shutdown under his order, all wells now not under proration in Oklahoma, these being wells, he said, which would produce less than 25 bbls. a day.

FARISH SCOUTS IDEA THAT HUMBLE CAN MAKE OR DESTROY OIL VALUES

AUSTIN, Tex., July 28.—W. S. Farish of Houston, Tex., president of the Humble Oil & Refining Co., testifying before the house committee, said reports that the Humble had posted two price reductions to force a session of the legislature were absurd and untrue. He admitted that the company was engaged in drilling inside wells and he said that was because it owned leases on about 20,000 acres or 16 per cent of the total area, and felt a sense of obligation to its lessors and royalty owners. He presented an analysis of East Texas production showing that 252 minor operators owning 10 per cent of East Texas acreage had 542 wells which represented 47 per cent of the total number and had produced 17,000,000 bbls. or 48 per cent of the total.

The Humble had no posted price in East Texas but paid 15 cents a barrel for all oil purchased except for handling 6,000 bbls. from a well owned by the Tulsa Oil Co., which had been on fire. Mr. Farish said that oil was being bought for 10 cents with the agreement that the well would be shut down as soon as it was conditioned and remain so until its overproduction had been absorbed.

Mr. Farish was told by Mr. Beck that it had been said in Austin that Mr. Farish could make or destroy more values by a single stroke of the pen than any man in the State. Mr. Farish said he could create no values. He said his company posted no price for oil that was not impelled by economic conditions. He said that sometimes he discussed prices and values with officials of the Standard Oil Co. of New Jersey, which owns 65 per cent of the stock of the Humble company and was a big purchaser from that company.

Oil, the witness said, was the only commodity sold without any system of futures or contract buying on posted prices. There was a time about 15 years ago when oil in Texas was purchased on a contract basis, when there was dickering between seller and buyer, but after the war the posted price system was announced. The witness said the system

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STERLING TELLS SENATE PROBERS OIL CONDITIONS ARE CALAMITOUS

AUSTIN, Tex., July 28.—Gov. Ross S. Sterling, testifying before the senate state affairs committee, characterized conditions in the oil industry as calamitous. The governor made it plain that he did not want price fixing to be a privilege of the proposed conservation commission nor that the definition of waste should include economic waste.

"It has been quite a time since I was active in the oil business and new methods have been invoked since I was in it, but the business is suffering more than any other industry," said the governor. "Cotton at 10 cents and 15 cents makes one-half cent for the farmer, while oil at 10 cents a barrel is selling at but 10 per cent of its real value. It is calamitous.

"Every state producing oil has conservation laws. The Railroad Commission says our laws are inefficient and cannot be enforced. I think you know that to be a fact and realize that legislation is needed to relieve the situation and save the industry. Chambers of commerce, other organizations and many persons, firms and corporations asked for this session to give relief. A few years ago I made it plain I was opposed to too much government in business, but conditions have changed, and it is now necessary for the government to come to the aid of the oil industry."

The governor said actual production might be about the same as it was last year, but that the oil was being held back and drilled, not pushed, because of the low price. Much oil, he said, was being taken out of storage and more imported. The governor said he would like to see all importation cut off.

Losing Hundreds of Thousands

"Governor, is it not a fact that the low price is responsible for this session?" he was asked.

"Yes. You would not be here if oil was selling at $1 or $1.50 a barrel. We are losing hundreds of thousands of dollars."

Senator Pollard asked why East Texas oil was selling at 10 cents and at Van, a few miles away, at 31 cents. The governor said so many were trying to sell

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Gov. William H. Murray of Oklahoma

Only Few Fields Increased Production

Great Decline in Crude Oil Output in First Half of 1931 Compared to Same Period in Other Recent Years

By James McIntyre

The production of crude oil in the United States in the first six months of 1931 was 17,075.649 bbls. less than in the last six months of 1930; 53,119,423 bbls. less than in the first six months of 1930; 102,570,213 bbls. less than in the last half of 1929, and 70,047,130 bbls. less than in the first half of that year; 45,782,438 bbls. less than in the last half of 1928 and 20,664,447 bbls. less than in the first half of 1928; 43,337,700 bbls. less than the last half of 1927 and 28,964,607 bbls. less than in the first half of that year. The demand for crude oil was as high in the first half of this year as it was in the first half of last, and higher than in the other years mentioned, so where was the overproduction? And why did the bottom drop out of the price for refined products and crude oil? This review is not on prices but on crude oil production, but the price question naturally obtruded itself. It could not be kept out.

The producers of oil in the East Texas oil field, a discovery of the last half of 1930, have much to answer for to the oil industry in general. It became known before the year was very far along that the East Texas Field was the largest oil field in area the world had yet known. This brought many new operators into the industry and without regard for consequences they soon had a drilling campaign on that resulted in a flood of oil. Drilling was cheap and wells were completed rapidly and were large in initial production. The situation could have been handled had the pipe line companies remained out of the territory, but they did not. One after another crude oil purchaser entered the field with pipe lines until the area was a network of gathering lines and most of the wells could be served with connections. Producers without their own refineries or other marketing outlets accepted almost anything offered for their oil in order to get it on the market and the resultant pitiful prices soon depressed the whole market schedule of both crude and refined.

No Overproduction

Yet there was no overproduction in the half year. Crude and refined oil was drawn from storage throughout the year. Operations were slowed up in practically every other field east of California because of the low prices being paid for oil in the latter days of the half year. Production for the six months showed increases in 16 major pools, but declines everywhere else excepting in the few small new pools opened in the last half of last year and the first half of 1931.

16 Pools Increase Production

In 16 pools, production, compared with the output in the first six months of 1930 in the same areas, increased 66,102,858 bbls. On the other hand, production in 56 major pools declined 90,344,974 bbls. and in the balance of the United States 28,877,307 bbls.

The East Texas Field had no existence a year ago, and the production in the first half of this year, which was 5,978,408 bbls. for the Lathrop Pool, 14,597,596 bbls. for the Kilgore Pool and 10,956,180 bbls. for the Joiner Pool, a total of 31,532,184 bbls. for the field, was all gain. If the East Texas Field is removed from the reckoning the increased production of the 16 other pools in the list would be reduced to 34,570,674 bbls. Of the pools that did produce in the first half of last year, Oklahoma City with a production of 24,536,965 bbls. in the first half of this year produced 6,666,061 bbls. more than in the same period last year; Hobbs, New Mexico, with a total of 6,056,256 bbls. showed a gain of 5,446,494 bbls. over the first half of last year, and Van, in East Central Texas, with an output in the first half of this year of 6,826.231 bbls. increased 4,163,260 bbls. over the first half of last year. Another pool with a big increase was Playa Del Rey in California. The 5,614,002 bbls. it produced in the first half of 1931 was 5,356,042 bbls. more than in the same period in 1930. Kettleman Hills, California, with 5,972,150 bbls. to its credit in the first half of 1931 had a gain of 3,488,445 bbls. over last year. Thus it will be seen that the East Texas Field, Van, Hobbs, Oklahoma City, Playa Del Rey and Kettleman Hills were the main contributors to any gain in production shown by American oil fields this year.

UPS AND DOWNS OF OIL PRODUCTION
Increases and Decreases in Production in the United States in First Six Months of 1931 Compared to First Six Months of 1930

	Production first six months 1931 (bbls.)	Production first six months 1930 (bbls.)	Increase this year (bbls.)	Decrease this year (bbls.)
Nineteen pools	111,418,966	45,316,108	66,102,858	.....
Fifty-six pools	210,651,605	300,996,579	.....	90,344,974
Other pools	93,703,619	122,580,926	.....	28,877,307
Total	415,774,190	468,893,613	66,102,858	119,222,281
Net decline in production compared with first six months, 1930				53,119,423
Net decline in production compared with last six months, 1930				17,075,649

56 Major Pools Decline

Fifty-six pools that were in the major class in 1930 or 1931, or both, slumped in production 90,344,974 bbls. in the first half of this year, compared to their production in the same period last year. The Seminole Field in Oklahoma, made up of 12 pools, dropped off 16,243,020 bbls.; The Hendricks-Leck area, 6,586,420 bbls.; Yates, 7,629,207 bbls.; Santa Fe Springs, California, 13,155,225 bbls. These were the major fields of greatest loss, but there were half a hundred other majors that showed decreases from 31,000 bbls. up to over 4,000,000 bbls. and a whole host of pools, hundreds in fact, that showed a combined additional loss of 28,877,307 bbls.

At the close of the half year the industry was still in a good statistical position, with excellent chances of producing less from July to December, inclusive, than in the first six months, which would bring the year's production down below the production of any year since 1926.

Notwithstanding stiff opposition to the proration movement in Oklahoma in the first half of this year by one of the major and several minor companies the plan proceeded and production was kept down to the lowest point since 1926, before the Seminole Field was discovered. The total of 95,838,677 bbls., a daily average of only 529,496 bbls., was 21,940,850 bbls. below that of the first half of last year when 117,779,527 bbls. was produced. Outside of Oklahoma City drilling operations were slowed up, giving little if any opportunity of maintaining their production level. Operators strictly observed the orders of the Corporation Commission as a rule. No new pools of prominence were discovered or developed, but extensions to the Oklahoma City Pool emphasized the fact that it is one of the country's great fields and may be expected to yield at least 225,000,000 bbls. before it reaches its economic end.

Production in Kansas was kept down below its allowable throughout the year, but the Ritz-Canton Field in McPherson County showed every indication of being one of the most productive the State has known. In line with producing policy the McPherson County pools were curtailed throughout the half year. The county could easily have produced 100,000 bbls. a day and it constitutes the largest field in the State at this time.

California Cut Down Its Output

Crude oil production in California for the first half of 1931 was substantially lower than the output for any similar six months' period since 1922 when production aggregated 61,092,778 bbls. for the first half year and 78,534,098 bbls. for the last half. The drop in production this year is due to aggressive curtailment and a normal decline in both flush and settled fields. It might not be amiss to mention in this connection, however, that decreased drilling and termination of flush production at Elwood and Playa Del Rey were important factors contributing to lower production. Peak production at Playa Del Rey was reached in December, 1930, and, while this field is definitely headed for a lower level, the decline will be relatively slow as its maximum production did not exceed 50,000 bbls. per day. There were only four wells drilling in the Playa Del Rey Field of Los Angeles Basin at the close of June and it is extremely doubtful whether any additional wells will be drilled in the town lot area from now on. The Union Oil Co. and the Ohio Oil Co. each has approximately 100 acres which have not been developed up to the present time but with this exception the outer limits of production have been established and competitive drilling concluded.

On the basis of production for the first half of 1931 and the existing curtailment program which contemplates restricting the State's output to a maximum of 487,500 bbls. per day for the next six months, production for the current year will be the lowest annual production since 1922. In 1923 California produced 722,545 bbls. per day and had an additional 124,288 bbls. per day shut in. Daily average production for the year 1924 was 628,588 bbls. and 630,541 bbls. for 1925. In 1926 annual production declined to 614,019 bbls. per day but increased again in 1927 to 632,196 bbls. daily. This upswing in production continued through 1928, which showed an average daily production of 633,832 bbls., and was climaxed by the establishment of the record peak production in 1929 when California operators produced 292,036,911 bbls. of crude oil, an average of 800,101 bbls. per day. Decline in the production of flush fields and effective curtailment brought production down to 624,931 bbls. per day during 1930 and these same factors are expected to limit state production during the year 1931 to somewhere around 500,000 bbls. per day.

Most Texas Fields Were Off

Production of the Gulf Coast also showed a sharp drop with a total of 31,422,135 bbls. Production the first six months of 1930 totaled 35,982,479 bbls.

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SUMMARY OF CRUDE OIL PRODUCTION IN UNITED STATES FIRST SIX MONTHS OF 1931

	1927 Prod. first 6 mos. bbls.	1928 Prod. first 6 mos. bbls.	1929 Prod. first 6 mos. bbls.	1930 Prod. first 6 mos. bbls.	1931 Prod. first 6 mos. bbls.	No. of oil wells June 30	Av. dly. prod. per well 6 mos.
New York	1,101,000	1,174,000	1,609,000	2,172,000	1,637,000	14,940	.61
Pennsylvania	4,750,000	4,829,000	5,489,000	7,344,000	5,465,000	78,670	.38
Ohio	3,842,000	3,594,000	3,252,000	3,390,000	2,811,000	37,950	.41
West Virginia	3,023,000	2,881,000	2,760,000	2,792,000	2,210,000	16,100	.76
Kentucky	3,209,000	3,633,000	3,464,000	3,878,000	3,176,000	18,800	.93
Michigan	216,000	211,000	1,273,000	2,148,000	1,511,000	562	14.73
Tennessee	26,500	24,000	12,000	7,000	4,000	.....	.....
Indiana	409,000	496,000	502,000	519,000	409,000	2,520	.81
Illinois	3,587,000	3,223,000	3,067,000	3,010,000	2,283,000	15,800	.80
Kansas	21,455,000	19,760,362	18,784,674	21,220,994	20,070,775	19,376	5.72
Oklahoma	129,565,618	117,458,526	126,020,255	117,779,527	95,838,677	59,062	8.96
North Central Texas	30,023,634	23,546,887	25,170,461	24,842,224	15,029,694	22,405	3.71
West Texas	15,915,827	58,209,778	65,533,126	58,824,487	40,690,647	2,867	78.41
Texas Panhandle	22,925,094	13,074,052	11,855,526	17,163,665	10,092,312	2,003	27.84
East Central Texas	7,673,768	4,298,691	3,712,775	5,616,731	8,877,881	1,192	41.15
East Texas	.....	.....	.....	.....	31,532,184	933	186.72
Gulf Coast	28,274,834	23,276,495	26,754,614	35,982,479	31,422,135	3,051	56.90
Southwest Texas	6,713,732	4,840,921	12,039,599	12,275,729	13,563,721	3,685	12.97
Arkansas	21,742,314	16,443,803	13,432,562	10,332,347	8,649,636	3,546	13.48
North Louisiana	9,068,817	8,118,780	6,449,462	7,259,246	47,227,389	3,249	12.29
Wyoming	10,779,747	10,561,844	9,145,923	8,927,810	7,814,930	3,531	12.23
Montana	2,073,040	2,063,313	1,809,606	1,646,357	1,501,846	1,423	5.83
Colorado	1,398,539	1,353,756	1,255,498	850,036	758,242	244	17.17
New Mexico	773,105	404,683	544,826	2,511,118	7,522,672	376	110.53
Utah	8,600	.....	.....	.....	.....	.....	.....
California	116,184,628	112,961,846	141,884,413	118,402,863	95,675,449	8,981	58.85
Total	444,738,797	436,438,637	485,821,320	468,893,613	415,774,190	321,266	7.15

State Has Right to Protect Ownership

Unit Plan Equitable and Feasible as Engineers Can Determine Quantity of Oil Each Surface Owner Is Entitled to Receive

By Earl Oliver*
Prepared in Collaboration with W. P. Z. German, General Attorney, Skelly Oil Company, Tulsa.

This series of articles will discuss in their respective order the several principles we believe must be incorporated into the law of oil and gas before efficiency, order and prosperity will be experienced by the industry. They are:

1. That each landowner or his assigns shall be declared entitled to those proportions of the oil and gas in the common reservoir that underlie his land, and shall be protected in their enjoyment.

2. That the forces of expulsion native to the reservoir shall be declared common attributes of the reservoir, to be conserved to the common interest of its several owners, and shall not be dissipated except as they are efficiently utilized in driving oil and gas from the reservoir rock to the point of extraction. When these forces have been so utilized then both the gas and the oil should be delivered to their respective owners.

3. That the State in its function of preventing waste of natural resources may require and prescribe efficient methods of exploiting oil and gas fields.

4. That during the periods of general overproduction the State, in order to prevent waste and/or to protect the producers as per Item 1 above, may determine from time to time the maximum amount of oil and gas that may be produced within the State and to that end shall have authority to limit the production in any pool to not exceed the market demand for oil therein.

5. That authority should be delegated to a state agency to formulate rules and regulations from time to time for the application and enforcement of the above principles.

In the preceding article of the series published in the July 23 issue of The Oil and Gas Journal, we endeavored to show that the characteristic overproduction, waste and general instability of the petroleum industry are the results of inadequate protection thrown around ownership to oil and gas in place; that each owner, being in danger of losing his rightful portion of the products to others draining from the common pool, is caused to bring his share forth at once regardless of market demand. Thus the lack of protection given to each owner interferes with the free working of the law of demand and supply.

Right of the State

It is the purpose of this article to discuss Principle No. 1. We shall review the right of the State to establish protection to each owner, and shall also discuss what the measure of each owner's share in the oil and gas should be, and how the amount of his share can be determined.

In a recent Texas case (Oxford Oil Company v. Atlantic Oil & Producing Company) the Federal Circuit Court of Appeals, among other things, said: "The right of the State to so regulate the drilling of wells for oil and gas as to conserve the rights of adjoining owners is too well settled to admit of serious controversy. * * * It is within the power of the Legislature to lay down a general rule for the protection of the mineral rights of the owners of adjoining lands and to leave the details of enforcing that rule to an administrative agency or board."

In a recent Kansas case (Marrs et al v. City of Oxford) the Federal Court, after reviewing numerous decisions, said: "These decisions leave not the slightest doubt that the State has the power to regulate the appropriation of oil and gas from a common pool on the ground of common ownership."

A line of cases that establishes beyond question the constitutional authority of the State to regulate the taking of oil and gas from a common pool for the purpose of preventing waste and to protect all the collective owners by securing just distribution of the products, is:

Ohio Oil Company v. Indiana, 177 U. S. 190, decided April 9, 1900;

Lindsley v. National Carbonic Gas Company, 220 U. S. 61, March 13, 1911;

Walls v. Midland Carbon Company, 254 U S. 300, December 13, 1920;

Oxford Oil Company v. Atlantic Oil Producing Company, 22 Fed. (2d) 597, November 23, 1927;

Marrs v. City of Oxford, 32 Fed. (2d) 134, June 10, 1929;

C. C. Julian Oil & Royalties Company v. Capshaw et al, 292 Pac. 841, October 14, 1930.

The principle having been established that each state legislature has the authority to regulate the taking of oil and gas from a common pool for the purpose of protecting all owners in a just distribution, then it becomes necessary to determine what a just distribution would be.

A perusal of the cases indicates that the courts, recognizing the great need of such regulation, concede a wide scope of discretion to the Legislature. The recent widespread disclosure of this power and discretion came as a surprise to some of the oil operators who had become accustomed to the unlimited freedom of individual action allowed them in the past upon which they had come to look as something to which they were entitled, not realizing that they were permitted to have it only because the State was negligent in imposing proper restraints upon them and that the negligence of the State in so doing is responsible for the present chaotic state of the oil business.

Power of Legislature

The Legislature, therefore, has the constitutional authority to determine, within limits, what the measure of each owner's share of oil and gas from the common pool shall be. Some students of the problem have urged that since the actual oil and gas content of any land is difficult to determine, the measure of participation should be based solely on the surface acreage involved. If it be difficult, still it could be adopted. A surface acreage basis can be use very satisfactorily in voluntary agreements if the parties can be persuaded to accept it, and frequently, with all the factors of the specific case before the participants, it is the most satisfactory method; but in establishing the actual legal rights of the owners for universal application to all pools of a state, it is impractical.

In every oil and gas pool, however limited it may be, there is a wide degree of relative productivity of acreages from the richest tract in the pool to that which it does not pay to drill. Occasionally these range in value from zero per acre to $100,000 or more per acre. With constant variations of great magnitude it is obvious that any proposal giving them, by law, the same measure of participation would meet with intense dissatisfaction. It violates an inherent sense of justice, as wells as the practices of the past which should not be disregarded except where they are obviously wrong. Furthermore the question of what acreage should participate would always be a subject of serious contention. While there is a legislative discretion to adopt it, yet we deem surface acreage as the legal measure of participation as impractical.

Various other standards have been urged from time to time such as gas-oil ratios, apportionment of energy, etc. These are all excellent tools for the engineer to experiment with. Some of them are highly valuable for the uses to which they are suited, such as measuring efficiency, etc., but they are entirely unsuited as standards by which to measure participation of respective owners. To say that the owner on top of the structure who cannot reduce his gas-oil ratio to a suitable figure shall not be permitted equitably to participate in the products from the common pool is going too far. He alone cannot start unit operation, which is the only means by which his gas-oil ratio can be reduced and permit him to secure his share of the oil and gas. He should not be called upon to pay the entire penalty for failure of the operators collectively to put that method into effect. He is as definitely entitled to the gas originally in his land and to such oil as might be there as is the owner farther down on the structure through whose wells oil can be produced at a proper gas-oil ratio. This problem injected difficulties in applying the recently enacted gas-oil ratio law in California.

Value of Unit Operation

Instead of denying the owner on top of the structure the right equitably to participate, the State should, instead, develop and require a method of extraction under which he can participate without doing violence to the gas-oil ratio standard of efficiency. That method is well known, namely; unit operation. While there is general agreement as to its desirability, it requires such a complete unanimity of action that its adoption is difficult to secure except through pressure brought by the State upon the few who will not agree to it. We believe the general application of gas-oil ratios and apportionment of energy as measures of each owner's participation in oil and gas would result in as much trouble, confusion and inequity as did the old rule of capture initiated by the Pennsylvania court.

We regard acreage content as the standard most likely to give universal satisfaction and do justice to all parties in any pool. It is simple and would serve as a permanent standard. It most nearly harmonizes with the thinking of the petroleum industry and with the American conception of property rights. In some states, particularly in Texas,

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WIDESPREAD INTEREST IN SUBJECT

Not only oil men throughout the United States, but state officials and members of legislatures are giving serious thought and attention to unit operation and more equitable methods of proration. Consideration is being given methods and plans for placing East Texas under a unit plan of operation. For these reasons the series of articles on this subject now being published by The Oil and Gas Journal is especially timely. The first article of this series was published in the July 23 issue of The Oil and Gas Journal. Showing the trend of thought on the subject, the following telegram was received from The Oil and Gas Journal's correspondent at Austin, Tex: "Robert R. Penn, Texas central proration chairman, promised, while testifying before the House, to have prepared for Rep. C. E. Farmer, Fort Worth, who asked it, a bill to provide that all owners in an oil pool should be given prorata share of all production, based on their acreage, and without regard to the number or ownership of the wells. He favored this principle to regulate drilling and prevent overproduction."

*Chairman A.I.M.E. Unit Operation Committee.

A.P.I. Sees Increased Gasoline Demand

Economics Committee Estimates Domestic Crude Oil Requirements at 2,393,000 Bbls. Daily During Last Half of Year

Total demand for refinery gasoline during the second half of 1931 will show an estimated increase of 3.7 per cent over that for the corresponding period of 1930, the American Petroleum Institute's committee on refinery statistics and economics reported to the board of directors. Domestic demand, it was estimated, will increase 5.7 per cent, but a decrease of 10 per cent was predicted in exports.

The committee estimated a decline of 2.4 per cent in total demand for crude oil, but said it looked for a 6 per cent increase in exports. Domestic crude oil requirements were placed at an average of 2,393,000 bbls. per day.

It was held that 27,184,000 bbls. of gasoline at refineries on October 1 would provide adequate working stocks, and, contemplating an increase of 3,100,000 bbls. above working stocks between October 1 and December 31, the committee set 30,284,000 bbls. as the economic limit for such stocks at the end of the year.

The committee warned that while late reports indicate reserve stocks of gasoline are being drawn upon heavily, the fact remains that if present refinery operations are continued through the early part of the period and then experience only the usual fourth quarter reduction, stocks are apt to be 7,000,000 or 8,000,000 bbls. higher than the recommended limit. In order to improve the general condition of the industry, it was suggested that each refiner make an earnest effort to improve his own situation and guard especially against entering 1932, as was done in 1931, with a ruinous surplus of gasoline. On July 1, the report said, approximately 2,550,000 bbls. of crude oil were run to stills daily, or 7 per cent more than the average of 2,387,000 bbls. estimated as required for last half.

The total supply of gas and fuel oil, east of California, was reported to be more than sufficient, and an increase of 1,500,000 bbls. in stocks was foreseen.

The committee recommended that of the total domestic demand for crude oil, 2,393,000 bbls. per day, there should be supplied from storage a greater part than the 90,000 bbls. withdrawn daily during the first half of 1931. Proration of production was advocated as the means of making this possible, but the committee expressed the opinion it was not within its province to recommend the proportions to be met from storage and by production.

The report was signed by W. R. Boyd, Jr., executive vice president of the institute, acting as chairman, and the following committee members: T. H. Barton, Lion Oil & Refining Co., El Dorado, Ark.; A. J. Byles, Tide Water Associated Oil Co., New York; T. A. Dines, Midwest Refining Co., Denver, Colo.; K. R. Kingsbury, Standard Oil Co. of California, San Francisco, Calif.; E. B. Reeser, Barnsdall Oil Corp., Tulsa, Okla.; Edward G. Seubert, Standard Oil Co. (Indiana), Chicago, Ill.; C. L. Suhr, Pennzoil Co., Oil City, Pa., and H. C. Wiess, Humble Oil & Refining Co., Houston, Tex.

To its report the committee attached the report of its statistical subcommittee, of which O. S. Ambrose, Tide Water Oil Co., New York, is chairman and Fred Van Covern, American Petroleum Institute, is secretary. Other members are: W. C. Allen, The Texas Company, New York; Clarel B. Mapes, Mid-Continent Oil & Gas Association, Tulsa, Okla.; A. J. McIntosh, Standard Oil Co. of New York, New York; E. P. Salisbury, Standard Oil Co. of New Jersey, New York; H. K. Davis, Western Petroleum Refiners' Association, Tulsa, Okla., and Earl W. Wagy, Standard Oil Co. of California, San Francisco, Calif.

In its summary, the report estimated total demand for refinery gasoline as 241,200,000 bbls. against 232,500,000 in the last half of 1930, total demand for gas and fuel oil 134,600,000 bbls. against 139,800,000, and total demand for crude oil 466,500,000 bbls. against 477,800,000.

SUMMARY OF REFINERY GASOLINE, GAS AND FUEL OIL AND CRUDE OIL DEMAND SUPPLY AND STOCKS
LAST SIX MONTHS 1930-1931 (ESTIMATED)
(Barrels of 42 Gallons)

Item and detail—	Refinery Gasoline: Last six months 1930 (total)	Last six months 1931 (est.) (total)	Increase or decrease: Total	%
Demand:				
Domestic	203,400,000	215,000,000	+11,600,000	+ 5.7
Export	29,100,000	26,200,000	— 2,900,000	—10.0
Total demand	232,500,000	241,200,000	+ 8,700,000	+ 3.7
Supply:				
From straightrun	107,500,000	*110,684,000	+ 3,184,000	+ 3.0
From cracked	84,100,000	91,800,000	+ 7,700,000	+ 9.2
From natural	22,400,000	19,800,000	— 2,600,000	—11.6
Total output	214,000,000	222,284,000	+ 8,284,000	+ 3.9
From imports	8,800,000	6,600,000	— 2,200,000	—25.0
From stocks	9,700,000	12,316,000	+ 2,616,000	+27.0
Total supply	232,500,000	241,200,000	+ 8,700,000	+ 3.7
Stocks:				
July 1	50,200,000	42,600,000	— 7,600,000	—15.1
October 1	38,200,000	27,184,000	—11,016,000	—28.8
December 31	40,500,000	30,284,000	—10,216,000	—25.2
Withdrawal 7/1–10/1	12,000,000	15,416,000	+ 3,416,000	+28.5
Addition 10/1–12/31	2,300,000	3,100,000	+ 800,000	+34.8

(Table Continued on Page 148)

ESTIMATES OF REFINERY GASOLINE, CRUDE RUNS AND YIELDS, BY DISTRICTS, LAST SIX MONTHS OF 1931
(Barrels of 42 U.S. gallons)

Item and detail—	East Coast	Appalachian	Indiana, Illinois	Oklahoma, Kansas	Inland Texas	Texas Gulf	Louisiana Gulf	North La. and Ark.	Rocky Mountain	California	Total all districts
Demand:											
Domestic and export	42,735,000	8,200,000	35,650,000	34,250,000	17,350,000	40,825,000	11,965,000	4,700,000	7,500,000	38,025,000	241,200,000
Supply:											
From straightrun	14,307,000	3,555,000	14,242,000	18,482,000	10,511,000	15,775,000	6,002,000	2,200,000	3,087,000	22,523,000	110,684,000
From cracked	19,000,000	3,500,000	18,000,000	11,500,000	4,000,000	19,600,000	4,200,000	1,700,000	2,900,000	7,400,000	91,800,000
From natural	750,000	310,000	1,630,000	2,607,000	2,050,000	3,500,000	1,440,000	800,000	820,000	5,900,000	19,800,000
Total refinery output	34,057,000	7,365,000	33,872,000	32,582,000	16,561,000	38,875,000	11,642,000	4,700,000	6,807,000	35,823,000	222,284,000
From stocks	2,318,000	835,000	1,778,000	1,668,000	789,000	1,950,000	83,000	.....	693,000	2,202,000	12,316,000
From imports	6,360,000	.....	.....	.....	.....	.....	240,000	.....	.....	.....	6,600,000
Total supply	42,735,000	8,200,000	35,650,000	34,250,000	17,350,000	40,825,000	11,965,000	4,700,000	7,500,000	38,025,000	241,200,000
Stocks:											
July 1	7,550,000	1,825,000	6,150,000	3,800,000	1,700,000	5,850,000	1,325,000	150,000	2,000,000	12,250,000	42,600,000
October 1	4,696,000	888,000	3,925,000	1,914,000	818,000	3,501,000	1,115,000	135,000	1,173,000	9,019,000	27,184,000
December 31	5,232,000	990,000	4,372,000	2,132,000	911,000	3,900,000	1,242,000	150,000	1,307,000	10,048,000	30,284,000
Withdrawal 7/1–10/1	2,854,000	937,000	2,225,000	1,886,000	882,000	2,349,000	210,000	15,000	827,000	3,231,000	15,416,000
Addition 10/1–12/31	536,000	102,000	447,000	218,000	93,000	399,000	127,000	15,000	134,000	1,029,000	3,100,000
Memos:											
Crude runs—total*	34,200,000	13,200,000	44,500,000	57,000,000	31,800,000	75,100,000	28,900,000	9,200,000	11,900,000	33,400,000	439,200,000
Crude runs per day	457,000	72,000	242,000	310,000	173,000	408,000	157,000	50,000	65,000	453,000	2,387,000
Yields from crude:											
Straightrun, per cent	17.0	27.0	32.0	32.4	33.0	21.0	20.8	23.8	26.0	27.0	25.2
Cracked, per cent	22.6	26.5	40.4	20.2	12.6	26.1	14.5	18.5	24.4	8.9	20.9

*Amount necessary to produce straightrun gasoline required.

ESTIMATED SHIPMENTS OF GASOLINE FROM REFINERIES BY DISTRICTS BY MONTHS, LAST SIX MONTHS 1931
(Barrels of 42 U.S. gallons)

Month—	East Coast	Appalachian	Indiana, Illinois	Oklahoma, Kansas	Inland Texas	Texas Gulf	Louisiana Gulf	North La. and Ark.	Rocky Mountain	California	Total all districts: Monthly	Daily
July	6,861,000	1,493,000	6,627,000	6,500,000	2,895,000	6,931,000	2,285,000	793,000	1,430,000	6,985,000	42,800,000	1,380,600
August	6,575,000	1,566,000	6,698,000	6,502,000	3,120,000	7,502,000	2,156,000	765,000	1,624,000	6,592,000	43,100,000	1,390,300
September	6,171,000	1,382,000	6,156,000	6,057,000	2,943,000	7,256,000	1,882,000	807,000	1,409,000	6,337,000	40,400,000	1,346,700
October	5,687,000	1,393,000	5,833,000	5,468,000	2,902,000	6,469,000	1,949,000	769,000	1,268,000	6,062,000	37,800,000	1,219,400
November	5,462,000	1,348,000	5,249,000	4,981,000	2,638,000	6,292,000	1,751,000	794,000	971,000	6,014,000	35,400,000	1,180,000
December	5,619,000	1,118,000	5,687,000	4,742,000	2,852,000	6,375,000	1,702,000	772,000	798,000	6,035,000	35,100,000	1,132,300
Total	36,375,000	8,200,000	35,650,000	34,250,000	17,350,000	40,825,000	11,725,000	4,700,000	7,500,000	38,025,000	234,600,000	
Daily average	197,700	44,600	193,700	186,100	94,300	221,900	63,700	25,500	40,800	206,700	1,275,000	

ESTIMATED TOTAL REFINERY OUTPUT OF GASOLINE BY DISTRICTS BY MONTHS*
(Barrels of 42 U.S. gallons)

Month—	East Coast	Appalachian	Indiana, Illinois	Oklahoma, Kansas	Inland Texas	Texas Gulf	Louisiana Gulf	North La. and Ark.	Rocky Mountain	California	Total all districts: Monthly	Daily
July	5,806,000	1,147,000	5,804,000	5,803,000	2,569,000	6,062,000	2,207,000	787,000	1,125,000	5,790,000	37,100,000	1,196,800
August	5,520,000	1,220,000	5,875,000	5,805,000	2,794,000	6,633,000	2,078,000	759,000	1,319,000	5,397,000	37,400,000	1,206,500
September	5,427,000	1,137,000	5,577,000	5,565,000	2,713,000	6,645,000	1,828,000	804,000	1,192,000	5,496,000	36,384,000	1,212,800
October	5,687,000	1,393,000	5,833,000	5,468,000	2,902,000	6,469,000	1,949,000	769,000	1,268,000	6,062,000	37,800,000	1,219,400
November	5,635,000	1,281,000	5,393,000	5,051,000	2,668,000	6,421,000	1,792,000	799,000	1,014,000	6,346,000	36,400,000	1,213,300
December	5,982,000	1,187,000	5,390,000	4,890,000	2,915,000	6,645,000	1,788,000	782,000	889,000	6,732,000	37,200,000	1,200,000
Total	34,057,000	7,365,000	33,872,000	32,582,000	16,561,000	38,875,000	11,642,000	4,700,000	6,807,000	35,823,000	222,284,000	
Daily average	185,100	40,000	184,100	177,100	90,000	211,300	63,300	25,500	37,000	194,700	1,208,100	

*Based upon reducing stocks to working stocks of 27,184,000 bbls., September 30, 1931, and economic stock of 30,284,000 bbls. January 1, 1932.

ESTIMATED ECONOMIC STOCKS OF REFINERY GASOLINE BY DISTRICTS BY MONTHS
(Barrels of 42 U.S. gallons)

Month—	East Coast	Appalachian	Indiana, Illinois	Oklahoma, Kansas	Inland Texas	Texas Gulf	Louisiana Gulf	North La. and Ark.	Rocky Mountain	California	Total all districts: Monthly	Daily
June 30	7,550,000	1,825,000	6,150,000	3,800,000	1,700,000	5,850,000	1,325,000	150,000	2,000,000	*12,250,000	42,600,000	.....
July 31	6,495,000	1,479,000	5,327,000	3,103,000	1,374,000	4,981,000	1,247,000	144,000	1,695,000	*11,055,000	36,900,000	.....
August 31	5,440,000	1,133,000	4,504,000	2,406,000	1,048,000	4,112,000	1,169,000	138,000	1,390,000	*9,860,000	31,200,000	.....
September 30†	4,696,000	888,000	3,925,000	1,914,000	818,000	3,501,000	1,115,000	135,000	1,173,000	*9,019,000	27,184,000	.....
October 31	4,696,000	888,000	3,925,000	1,914,000	818,000	3,501,000	1,115,000	135,000	1,173,000	*9,019,000	27,184,000	.....
November 30	4,869,000	921,000	4,069,000	1,984,000	848,000	3,630,000	1,156,000	140,000	1,216,000	*9,351,000	28,184,000	.....
December 31	5,232,000	990,000	4,372,000	2,132,000	911,000	3,900,000	1,242,000	150,000	1,307,000	*10,048,000	30,284,000	.....

*Includes all stocks, refinery, terminal, sales stations, etc. †Represents working stocks.

Half Year of Big Initial Production

Enormous New Wells in Oklahoma City and East Texas. Flush Fields Affected Operations in All Other Areas

By James McIntyre

One would have to go back to 1898 to find a six months' period in which there were fewer wells drilled in the United States than in the first half of the year. Not since 1915, when the Cushing Field overshadowed all other fields, as East Texas did this year, has there been a half-year period that approached the first half of 1931 in drilling inactivity. Curtailment of production from the most easterly to the most westerly field, and the clamor to "stop the drill," had their effect. To the top-heavy potential production of the world was added the uncontrolled development of what is called the biggest field on earth in East Texas. Fear seized the industry generally and prices toppled both for refined and crude products. In every state, save in the flush fields, tools were stacked to await the passing of the flood of potential overproduction.

There never was an actual overproduction in the United States in the first six months of 1931, as crude oil and refined stocks were drawn upon in every month, but local price cutting by some refiners and marketers was met by competitors and these price wars spread until they took in the whole country, exercising a depressing influence on all oil prices and a consequent dullness in every oil region even though, in the aggregate, there was at no time more oil produced than the public demand for oil products warranted. It was a panicky year—one of those years that men will look back upon and wonder why the petroleum structure was permitted to weaken from foundation to roof.

Very Big Wells

Although drilling operations fell off nearly 44 per cent and new oil wells completed fell off over 55 per cent, compared with the record of the first six months of last year, the initial production increased from 4,057,729 bbls. to 4,131,038 bbls., a net gain of 73,309 bbls. For this the Oklahoma City Field in Oklahoma and the East Texas Field were mainly responsible. Enormous initial producers were completed in both fields. These big wells increased the average initial production per well in the United States to 1,382.54 bbls. as against an average of 604.01 bbls. in the first half of 1930. The dry hole average of 35 per cent was high and the percentage of gas wells was also above the average.

Small Percentage of Oil Wells

The percentage of oil wells was unusually low, lower in fact than in many years, which fact was offset by the high average initial productiveness of this year's completions.

In the first six months of this year only 46.7 per cent of the wells completed in the United States were oil wells. In the first half of last year the percentage was 59.1, but they averaged not much more than half as large in initial output.

Sensation of the Year

The most interesting field of the half year—the only sensational one—was the East Texas Field in Rusk, Gregg, Upshur and Smith Counties, but mostly in Rusk and Gregg. Three big pools were developed from the "Dad" Joiner discovery in Rusk County in the fall of 1930, but it was definitely settled that it was one big structure comprised of between 100,000 and 125,000 acres of what is generally regarded as Woodbine sand.

The discovery of this field was a surprise to oil men generally, but it should not have been. The first oil discovered in Texas was in Nacogdoches County, not many miles from the discovery well of Dad Joiner, and ever since that discovery of the late nineteenth century the eastern part of Texas has been an oil country, beginning with the discovery of the Corsicana shallow sand production in 1896, followed many years later by the deeper sand discoveries near Corsicana in the Mexia, Powell,. Wortham, Richland, Currie and other pools, while on the east the important pools of Louisiana were being developed following the first discovery in the Caddo district. Every county between the Louisiana line and Corsicana, Tex., has come in for more or less wildcat test work, with showings of oil or gas in some of them, and as far back as 1916 the Shell organization drilled in Rusk County on a structure worked out by James A. Gardner, but quit a few hundred feet above the pay horizon. In those days a 3,200-foot well was regarded deep. Then came the discovery of the Van Pool in Van Zandt County and renewed confidence in the idea that there was undiscovered oil in that part of the Lone Star State, which was proved with a vengeance this year when 936 oil wells were completed in the first half of the year with an initial production rated at 2,071,016 bbls., or an average of 2,212.63 bbls. per well. These figures include all the oil wells completed between Corsicana and the Louisiana line. Taken alone, the completions in the Joiner, Kilgore and Lathrop area greatly exceed the average in initial production per well.

The wells in the East Texas Field average about 3,650 feet in depth and they drill as much as 100 feet of clean porous sand. The wells can be completed in less than a month's time, and some remarkable speed records have been made in drilling.

Low Drilling Cost

Rotary tools are used exclusively, and the cost of drilling is low. Twenty thousand dollars will complete a well. Many wells have been drilled at much below that price. To complete the wells and put them on the pump with adequate lease tankage and other equipment can be done inside of a total expenditure of $30,000. East Texas drilling costs compared with $140,000 in Oklahoma City and $250,000 in Kettleman Hills are reasons why the area was developed so rapidly in the first half of this year regardless of the low prices the producers received for their oil.

It was figured that oil could be produced at a profit at, say, 35 cents per barrel. The first posted price in the field by a major company was by the Magnolia Petroleum Co. which offered 67 cents per barrel effective March 26. As production increased and producers found it harder to get purchasers, oil was offered at all kinds of price, even as low as 8 cents before the half year was over, and since that time it dropped even lower, the lowest price reported having been 2½ cents per barrel for 50,000 bbls. of oil. It is believed that the 67-cent price was the highest the producers were offered at any time, and the average prices by month received for the crude produced in the first six months of the year was not enough to give a profit to all the producers in the field, the average falling to 15½ cents in June.

Because of the fact that the East Texas Field was altogether unnecessary at this time, the big purchasers did all they could to discourage its development until such time that the industry had real need for the oil and no company has made a steady posted price throughout the half year. What oil they bought was mostly either spot or on contract at low prices, say 30 cents, 25 cents, 15 cents, and even lower.

The development of the field on a large scale was an economic error. It only made a bad situation worse and weakened the whole industrial structure.

East Texas oil has an unusually high gasoline content, and is easily refined. The field would have been a treasure house to its owners had they held off for future development at proper prices. At the close of the half year efforts were being made to induce Governor Sterling to call a session of the legislature at which

(Continued on Page 163)

SUMMARY OF COMPLETED WORK IN ALL THE FIELDS OF THE UNITED STATES IN FIRST SIX MONTHS OF 1931 AND IN SAME PERIOD OF 1930

	First 6 mos.	Comp.	Initial prod.	Dry holes	Gas wells	Oil wells	Av. in. prod. (bbls.)
Eastern	1931	882	2,231	184	386	312	7.15
	1930	2,442	12,391	186	296	1,960	6.32
Central Ohio	1931	286	1,698	85	142	59	28.78
	1930	582	9,178	158	234	190	48.30
Michigan	1931	49	2,902	23	10	16	181.38
	1930	151	15,773	54	9	88	179.24
Lima	1931	70	453	15	41	14	32.36
	1930	99	846	24	20	55	15.30
Indiana	1931	89	1,075	43	24	22	48.86
	1930	101	1,741	36	21	44	39.57
Kentucky	1931	258	7,853	88	73	97	80.96
	1930	551	11,810	166	47	338	34.94
Tennessee	1931	4	.....	.....	4	.....	.....
	1930	9	.....	.....	9	.....	.....
Missouri	1931	3	.....	3	.....	.....	.....
	1930	.....	.....	.....	.....	.....	.....
Mississippi	1931	42	.....	27	15	.....	.....
	1930	6	.....	4	2	.....	.....
Alabama	1931	.....	.....	.....	.....	.....	.....
	1930	1	.....	1	.....	.....	.....
Illinois	1931	26	69	16	1	9	7.78
	1930	115	2,123	47	1	67	31.69
Kansas	1931	256	75,488	79	58	119	634.36
	1930	514	100,380	217	47	250	401.52
Oklahoma	1931	714	1,431,798	247	117	350	4,090.84
	1930	1,898	2,470,015	534	191	1,173	2,105.73
North Central Texas	1931	729	23,860	473	54	202	118.12
	1930	1,728	96,121	905	73	750	128.16
West Texas	1931	221	25,989	111	2	108	240.64
	1930	427	159,464	133	4	290	549.87
E. Central and E. Texas	1931	1,056	2,071,016	113	7	936	2,212.63
	1930	134	158,168	67	4	63	2,510.60
East Texas gas area	1931	31	.....	27	4	.....	.....
	1930	22	.....	3	19	.....	.....
Texas Panhandle	1931	146	26,557	26	55	65	408.57
	1930	271	106,693	35	75	161	662.69
Gulf Coast	1931	506	128,997	224	17	265	486.74
	1930	672	265,293	232	22	418	634.67
Southwest Texas	1931	401	42,183	219	34	148	285.00
	1930	455	272,745	203	34	218	1,251.12
North Louisiana	1931	165	17,563	85	46	34	516.56
	1930	384	32,354	136	109	139	232.76
Arkansas	1931	42	2,078	23	5	14	148.43
	1930	74	2,298	14	4	29	29.24
Montana	1931	27	94	11	11	5	18.80
	1930	62	2,036	19	13	30	67.87
Wyoming	1931	29	4,979	5	4	20	18.80
	1930	56	8,296	10	5	41	202.34
Colorado	1931	19	1,186	9	3	7	169.43
	1930	26	560	16	2	8	70.00
New Mexico	1931	34	74,219	9	6	19	3,906.26
	1930	56	31,494	22	7	27	1,166.44
Utah	1931	2	.....	2	.....	.....	.....
	1930	2	.....	1	1	.....	.....
California	1931	286	188,750	119	.....	167	.....
	1930	522	297,950	143	.....	379	786.15
First 6 months	1931	6,373	4,131,038	2,266	1,119	2,988	1,382.54
First 6 months	1930	11,360	4,057,729	3,393	1,249	6,718	604.01
Difference			4,987	73,309	1,127	130	3,730	778.53
First 6 months	1929	11,941	3,265,396	3,706	1,233	7,002	466.35
First 6 months	1928	10,455	3,113,947	3,428	1,273	5,754	541.18
First 6 months	1927	12,738	2,340,422	3,384	1,101	8,253	283.58
First 6 months	1926	12,995	1,317,432	3,644	1,087	8,264	157.86
First 6 months	1925	12,080	2,666,746	3,069	1,085	7,926	336.46
First 6 months	1924	10,940	1,707,093	2,457	1,114	7,369	231.66
First 6 months	1923	13,013	2,587,761	3,014	1,108	8,801	294.03

Benzol Has Great Anti-Knock Qualities

High Compression Motors Have Stimulated Demand for This Blending Agent Which Is Distilled From Coal

By Robert C. Conine

One branch of the hydrocarbon family appears to have avoided the disasters which have overtaken its naphthenic and paraffinic relations. This is the aromatic branch, who trace their ancestory, before the age of commercialism and coal tar, back to tolu balsam and gum benzoin in the days of the Pharoahs.

Benzol, the aromatic principally considered in this article, dates from 1825 when Faraday distilled the "drip" from illuminating gas which at that time being compressed into cylinders and delivered to consumers, an anticipation of the modern "bottled gas" industry. Although the nondetonating property of benzol when used as fuel for internal combustion engines has been known for nearly a quarter of a century, the demand for this product as a motor fuel had been comparatively slack until the advent of high compression motors.

FUEL CHARACTERISTICS

A statement by one of the leading authorities on benzol is of interest to motorists. He says: "Benzol is heavier than gasoline; contains more B. t. u. per gallon and will run a motor farther. It also forms less and softer carbon and gives 15 to 20 per cent more mileage than any other anti-knock motor fuel".

Coal tar, produced by the destructive distillation of coal, furnishes all of the benzol now used. The fractions of coal tar (100 parts) are benzol and homologues, 1.40 per cent; carbolic acid (phenol), 0.20 per cent; naphthalene, 4 per cent; creosote oil, 24 per cent; anthracene, 0.20 per cent; pitch, 55 per cent, and the remainder of the charge is water. The homologues of benzol are toluol and xylol. The fractions above mentioned are separated into their constituents by a variety of methods. It is well known that the products derived from coal tar number over 200,000.

Used as Blending Agent

As the entire output of all benzol plants now operating in the United States is far below the demand of the motoring public of, for instance, the State of Illinois, this product is not competing with gasoline as a straight motor fuel. Benzol is, however, gaining a wide popularity as a blending agent to increase the antiknock quality of straight-run gasoline.

One of the largest coal tar plants and benzol refineries in the country is operated as a subsidiary of the Peoples Gas, Light & Coke Co. of Chicago. Forty-five carloads of coal are charged into the coking ovens daily at this plant, and from each ton of coal the gas yield is from 10,000 to 12,000 cubic feet, the coal tar yield is 9 gallons per ton, and the production of ammonium sulphate in the treating process amounts to 25 pounds per ton of coal.

The benzol refinery has a capacity of 1,000,000 gallons a month, or a daily output of benzol, toluol and xylol, of approximately 34,000 gallons. Before going further into this phase of the coal tar industry the processes for recovering by-products from the coal gas which passes overhead out of the coking ovens are considered below.

Processes Employed

The gas from the coke ovens is cooled gradually so that the sudden condensation of tar vapors will not remove too large a part of the light oils which give the gas its B.t.u. value. The coal tar is removed from the gas by means of primary coolers which lower the temperature of the gas from about 120° C. to 35° C., condensing out the tar and wa-

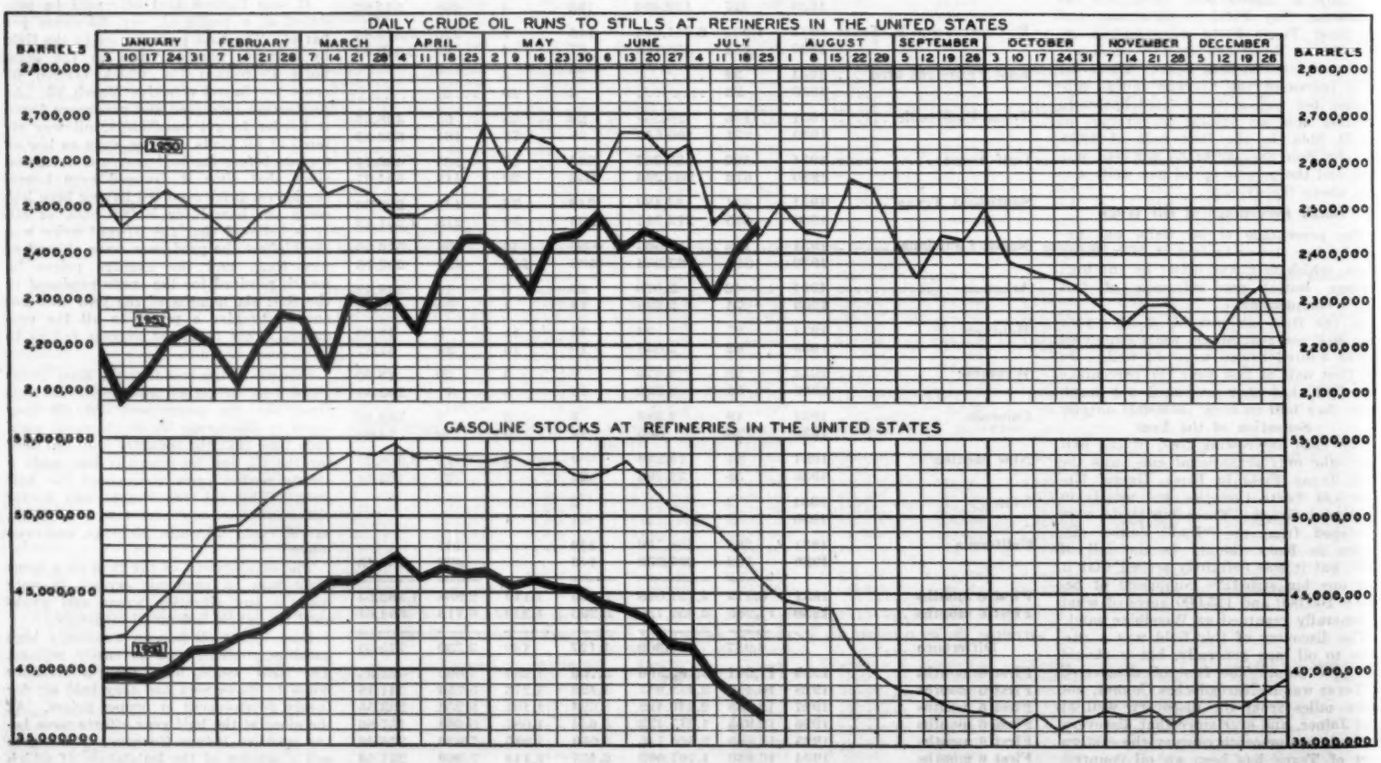
(Continued on Page 147)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ended July 25.

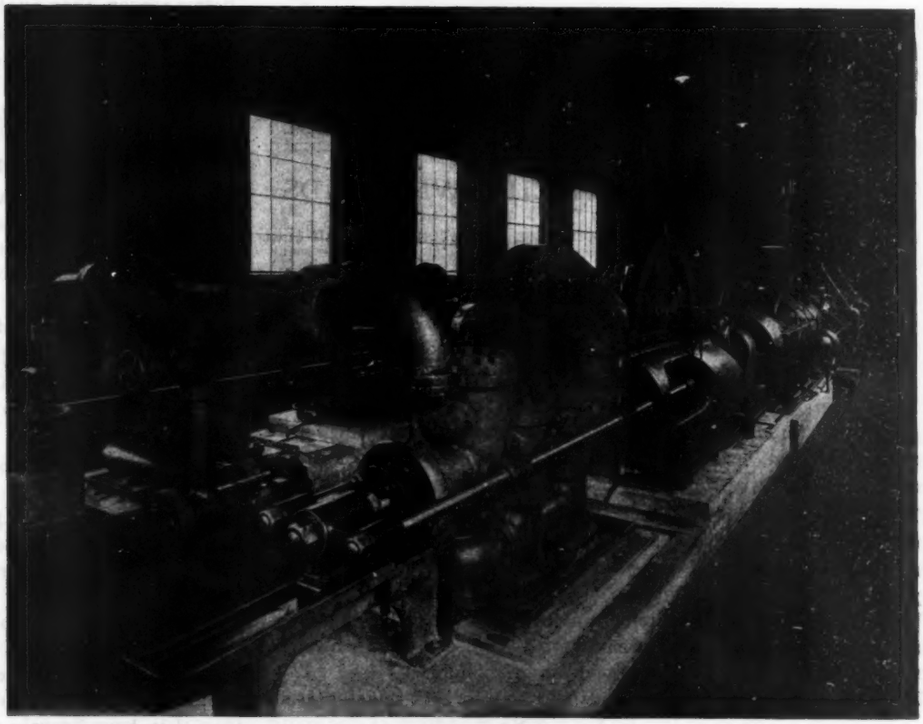
	Week ending July 25				Week ending July 18				Week ending July 26, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	483,100	6,489,000	9,576,000	100.0	487,400	6,394,000	9,628,000	100.0	488,700	7,354,000	9,757,000
Appalachian	91.8	117,600	1,328,000	1,420,000	91.8	103,600	1,367,000	1,239,000	91.8	77,800	1,467,000	1,042,000
Indiana, Illinois, Kentucky	96.6	334,100	5,483,000	3,847,000	96.6	311,400	5,667,000	3,824,000	99.6	295,900	7,263,000	4,403,000
Oklahoma, Kansas, Missouri	98.6	296,200	2,840,000	5,160,000	89.6	305,400	2,717,000	5,132,000	89.8	281,600	3,837,000	4,671,000
Texas	91.3	538,000	6,892,000	10,632,000	91.3	562,400	7,024,000	10,848,000	90.4	582,600	6,476,000	10,182,000
Louisiana and Arkansas	98.9	183,000	960,000	2,811,000	98.9	191,200	1,030,000	2,892,000	96.8	164,900	1,977,000	1,927,000
Rocky Mountain	89.3	59,400	1,676,000	829,000	89.3	61,600	1,704,000	840,000	93.6	54,800	2,481,000	1,204,000
California	96.5	502,700	11,681,000	98,528,000	96.5	480,000	11,414,000	98,503,000	99.3	572,300	13,796,000	106,083,000
Total United States	94.7	2,514,100	37,359,000	132,793,000	94.7	2,473,000	37,377,000	132,956,000	95.7	2,518,600	44,751,000	139,269,000
Texas Gulf Coast	99.8	392,700	5,656,000	7,347,000	99.8	415,000	5,962,000	7,660,000	100.0	429,900	5,253,000	7,155,000
Louisiana Gulf Coast	100.0	116,700	815,000	1,864,000	100.0	125,400	907,000	1,946,000	100.0	106,100	1,589,000	1,063,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1931 based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above tables.

Users of TRANSIT PUMPS are generally just the type of companies you would naturally expect to use them—



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MEMBER AUDIT BUREAU OF CIRCULATIONS

THEIR REMEDY IN THEIR OWN HANDS

Oil producers are learning a lesson from the recent price cut that may be worth all it cost them.

That is, that if they will control their production they can control price—within reason.

They can keep prices from dropping below the cost of production by withholding production until the market rights itself.

The success of the operators in the Mid-Continent in refusing to sell their oil at nominal prices has been a convincing object lesson to producers in East Texas who at last are begining to see the folly of throwing away their production at any price offered.

There is a legitimate market for 250,000 bbls. daily from East Texas at a dollar a barrel which means an income of $250,000 a day. That district has been selling 400,000 bbls. daily for about $50,000 a day.

With the first flush of excitement over new found riches past, operators there are discovering their mistake and are taking heed to the example of practical oil producers in other fields.

If the producers in the Mid-Continent can force a revision from 22 to 50 cents in a week or two by the simple expedient of declining to sell at a sacrifice East Texas may well ask itself why not there also.

Every oil man knows that the present price of crude has no proper relation to the cost of production or to the intrinsic value of the oil.

Talk of there being no overproduction is reduced to absurdity by prices. Despite the reductions secured by proration, production has all along been above the estimated requirements. The industry has been warned for several years that the quantity of crude required was due to decline owing to the gasoline obtainable from other sources. The estimate for the next six months, it will be observed, is less than for the past half year by 2.4 per cent.

Scores of suggestions have been offered to remedy the situation, ranging from legislative action to a refusal of the pipe lines to handle overproduced oil, but all the time it has been clear to any disinterested observer that the most effective and promptest remedy lay in the hands of the producers themselves if they could only see it—withholding their production from a glutted market.

That a majority of the producers in Oklahoma, Kansas, West Texas and California have long seen it was proved by their support of the voluntary curtailment programs. But it has been an uphill fight against the obstinate and unthinking minority which could not see anything but their immediate gain.

It was this situation that compelled leaders in the industry to ask for new legislation in California and in Texas, although oil men, as a whole, have always felt that there was danger in outside interference and that the best thing would have been for the industry to solve its troubles in its own way.

The wisdom of that opinion is being shown at Austin where the appeal to the legislature for an effective conservation law is being kicked around in a political scrimmage with no reassuring indication of the outcome.

In the light of what the Mid-Continent producers have been able to accomplish by withholding their production until the market is stabilized at a living figure perhaps the industry will hereafter determine to rely more on its own efforts than waiting around for someone to haul it out.

If that is the outcome then these unhappy days may have a compensation that was little to be expected.

For one thing it ought to cure the tendency to put the blame for our own shortcomings everywhere else. If producers can steady the market by adjusting their supply to the demand, when the price falls below reason, they ought to be able to avoid overproduction and its consequent depreciation of their product at any time.

Shutting down production rather than selling it at a loss is, of course, a desperate and costly remedy but the situation that caused it was even more desperate and more costly. Happily the application of this remedy may be short and swift but when it has served its purpose the effects of the experience will remain.

Particularly they should make an impression in East Texas where reckless production has reached the point where sober reflection follows. Even novices in the oil business, eager for unexpected gain, may now pause long enough to ask themselves why they should continue to throw away oil worth dollars for dimes or quarters, even if they did find it like a hidden fortune.

Next to that, the silliest feature has been the effort to put the blame for dirt cheap oil anywhere but where it really belonged—upon the producers who insisted on producing more than the market justified.

No refiner is going to pay more for crude than he can get it for and if the producer sells it for less than it costs him to produce it he surely cannot blame the buyer for taking it at the lowest price he can.

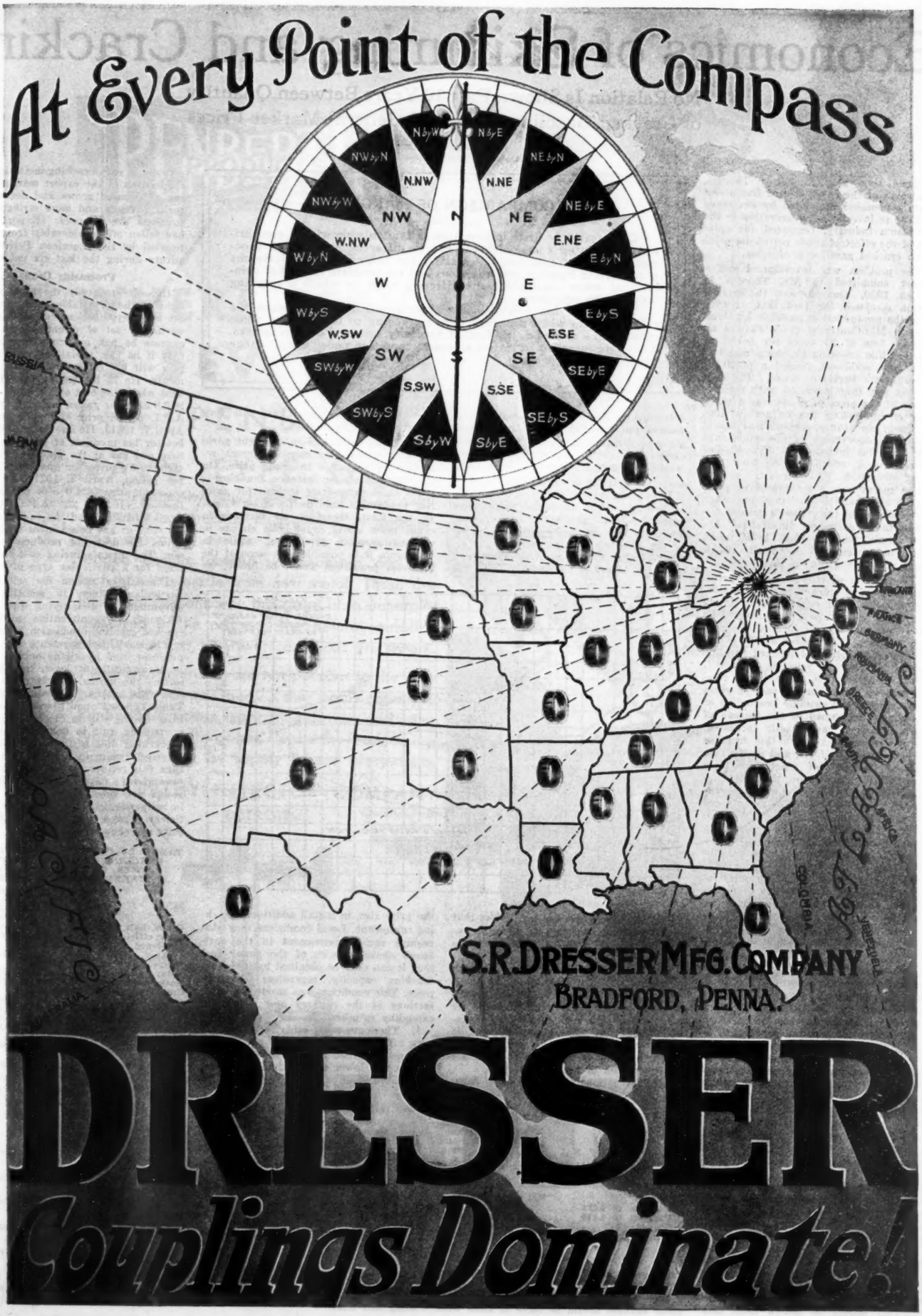
It is just as silly to blame the pipe line companies for laying lines into a new area. As purchasers they are entitled to buy where they can buy most cheaply. If producers would not sell except at a reasonable price and would keep down their production until there was a fair market for it they could control the situation.

But, it will be said, how about the producers, if they cannot produce their oil, what shape will they be in? They will be in no worse than they have been in the past few weeks when the price was so low they would not take it.

The fact is, and oil men have been slow to recognize it, the industry is no longer hopping from one flush field to another trying to keep up with demand. With the great surplus aboveground that ought to be drawn upon before the market is in a healthy condition and the vast potential reserves awaiting the drill, we must settle down to a routine operation that will match supply with demand as it grows.

For the growth of the industry depends not upon the growth of supply but upon the growth of demand, a fact that both producers and refiners seem to have forgotten too often in their frenzied efforts to expand.

If they will take notice from the action of the Mid-Continent producers that there is a point where absolute shutting down is better than running at a certain loss we shall perhaps have a new day in the industry, with steady operation and an assured return, and profit, not mere volume, the goal of business.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Economics of Skimming and Cracking

No Relation Is Shown Past 10 Years Between Quantity of Cracked Gasoline Made and General Market Prices

By George B. Murphy
Universal Oil Products Co.

Some time ago, S. Elmer Thomas, chairman of the committee of five petroleum economists appointed by Secretary Wilbur to investigate conservation in the petroleum industry, requested our opinion of the effect of crude petroleum price upon cracked gasoline production.

The problem was investigated and a report submitted to Mr. Thomas in March, 1930. One phase of the investigation disclosed the fact that at that time the production of gasoline by skimming a Mid-Continent crude showed an average loss of 27 cents per barrel of crude, while cracking the same material to a coke residuum yielded a profit of 27 cents per barrel of crude. The conclusion was that proration with maintenance of the price of crude was a surer way of interesting the refiner in nonresiduum cracking operation, and hence, securing conservation of the crude supply, than the introduction of a six-day refinery week, which, at that time, was being advocated.

The recent severe reductions in price of both crude and refined products cause the economics of the refiner's present situation to be extremely interesting. Another study has therefore been made, based on present prices (April, 1931). The results are given in this paper.

The question of effect of crude petroleum price upon cracked gasoline production, it would seem, could be very simply (but, perhaps, superficially) answered by merely assembling statistics of the past several years. Comparison of these two factors, crude price and cracked gasoline production, year by year, in Figure 1, shows, however, that there is no relation between them. For the past 10 years the yearly cracked gasoline production of the country, as shown by the Bureau of Mines statistics, has steadily increased. During the last six years this increase has been rather uniform, and at the rate of about 20 per cent yearly has more than tripled, based upon the 1924 figure of 40,000,000 bbls. The average yearly price of crude petroleum, as obtained from the Prairie Oil & Gas posted price for 36° A.P.I. Mid-Continent crude, on the other hand, has shown but little variation. If we consider only the past 10 years (during the years 1919 and 1920 all commodity prices were notoriously inflated), the price of crude has been surprisingly uniform. The average price has been 3.65 cents per gallon, with a maximum deviation of 23 per cent above (1926) and 21 per cent below that price (1930).

Consideration of monthly averages for the past four years, shown in Figure 2, again fails to reveal any trends in these factors that can be definitely related. There is a seasonal tendency for the price of crude and for gasoline production to increase in the summer and to decrease in the winter. Nevertheless, the price of crude remained essentially constant from March, 1927, to October, 1930, while cracked gasoline production irregularly increased 65 per cent during that time.

Since the average price of crude has been so uniform over the past nine years, a gasoline price curve was added to the charts as a matter of interest in order to determine if a relation might be drawn between cracked gasoline production and the price of this principal product from crude. The variations on the monthly chart show merely seasonal trends, but more definite tendencies seem apparent on the yearly average chart. Gasoline price has steadily decreased, while cracked gasoline production has steadily increased. No definite conclusion upon the effect of price on cracked gasoline production should be drawn from this relationship, however, as it probably represents the working of the law of supply and demand, for, as is well known, except for 1931 indications, gasoline stocks have steadily increased since 1918.

COMPARISON OF MARGINS

Comparatively little information is available showing a comparison of refining costs with respect to different methods of processing. The introduction of cracking has helped to complicate the procedure in figuring refining costs and the problem is further complicated when considering the different ways in which a cracking unit may be operated.

The author has established a general relationship between the refining costs when skimming, when cracking to fuel oil and when running to a nonresid. He has, of necessity, assumed certain factors. These are intended to reflect a typical condition under a wide range of operating expenses.

Problem in the Future

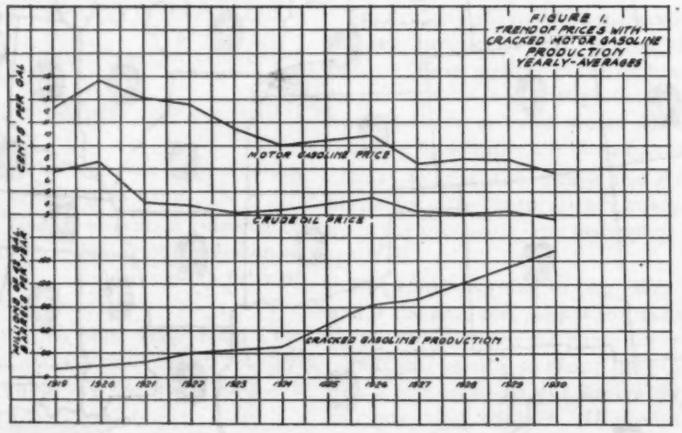
Past performances thus provide no clue as to the effect of crude price upon cracked gasoline production. An opinion, however, may be derived from a study of the economic factors entering the refiner's future operations of skimming and cracking. Attack of the problem from this viewpoint involves so many variables that the task at first glance appears impossible. Some of these variables are as follows:

1. The refiner may have his own source of raw material, crude, in quantities less than, equal to, or more than his cracked gasoline requirements; he may or may not own crude transportation equipment. The operating costs of these two branches of his organization, production and refining, will influence his production of cracked gasoline.

2. Fluctuations in the prices of gasoline, fuel oil, coke and gas, will very greatly effect the decision.

3. Local conditions in different parts of the country may cause different reactions to a change in crude price. On the East Coast, for instance, cracking is much more extensively utilized for gasoline production than on the West Coast. In the East, therefore, an increase in crude price would cause little change in cracked gasoline production, while in California it is possible that some of the high-cost producers would be forced, by the price rise, to install additional cracking equipment. Local conditions may also require such improvement in the antiknock characteristics of the motor fuel that it can only be obtained by increased cracking capacity, regardless of crude price. This condition was started in some sections of the country and is rapidly extending to others.

4. There are many other factors which may affect cracked gasoline production, such as the trend in the industry to install in this lower cost method as capital allows, the style or apparent tendency of refiners to vary cracking methods, and the fluctuation in the export market increasing as demand grows and decreasing as tariff barriers and more stringent specifications are imposed. (Export demand has fallen off considerably from that estimated by the American Petroleum Institute during the last six months.)



Processing Crude

In order to study the problem in the light of these variable conditions, let us set up a hypothetical refiner faced by a particular set of circumstances. Let us assume he has no crude production, or that if he has, variations in his production will not effect his refining requirements. He is located in the Mid-Continent where the cost of his crude delivered is 0.8 cent per gallon higher than the 36° A.P.I. posted price (59 cents per barrel, April 7, 1931). He has an unlimited market for his products of gasoline, fuel oil, coke and gas at the published Oklahoma (Group 3) price for gasoline (3.5 cents per gallon, April 7, 1931), and at the constant price of 1.0 cent per gallon for fuel oil (18° to 22° A.P.I., Group 3, April 7, 1931), and the equivalent price for coke or gas based upon their heating value. He does not produce lubricating oils. The manufacturing cost is assumed fixed for a particular type of operation.

There is a reason for selecting this particular refiner, in addition to the advantage of simplifying the problem. Although his contribution to the total cracked gasoline production in this country is small, he represents the marginal producer, and by virtue of this position, is, theoretically at least, responsible for setting the normal supply price of gasoline. The profit calculations shown in Table 1, based upon processing the crude in a topping still to fuel oil residuum, in a cracking unit to nonresiduum, and in a cracking unit to fuel oil residuum, respectively, show in a general way the return this refiner may expect based upon present-day (April, 1931) prices. The yields are taken from results obtained in refineries where operation is most efficient. The details of the operating results are shown in Table 2.

TABLE 1—PROFIT CALCULATIONS PROCESSING 1 BBL. OF CRUDE

	Cracking to fuel oil residuum		Cracking to nonresiduum		Skimming to fuel oil residuum	
Debits:	Yield	Dollars	Yield	Dollars	Yield	Dollars
Crude price 36° M.C.	42 gals.	*0.59	42 gals.	0.59	42 gals.	0.59
Delivery cost		0.36		0.36		0.36
Manufacturing cost		A		B		C
		0.95 + A		0.95 + B		0.95 + C
Credits:						
Gasoline @ 0.035	29.8 gals.	1.04	33.6 gals.	1.18	14.7 gals.	0.51
Fuel oil @ 0.010	10.5 gals.	0.11	0.0 gals.	0.00	26.9 gals.	0.27
Gas @ 0.143	0.168 M.C.F.	0.02	0.504 M.C.F.	0.07	0.042 M.C.F.	0.01
Coke @ 2.186	0.0 ton	0.00	0.021 ton	0.05	0.0 ton	0.00
		1.17		1.30		0.79
Profit per barrel of crude		0.22 — A		0.36 — B		Loss 0.16 — C

*The posted price of 36 gravity Mid-Continent crude was cut on June 1 to 32 cents a barrel. The quoted price of 58-60 U. S. Motor gasoline on June 26 was 2¼ to 2½ cents. These changes should be borne in mind when reading this table.

TABLE 2—OPERATING RESULTS PER CRACKING UNIT AS BASIS OF COSTS CRACKING MID-CONTINENT CRUDE (35% Gasoline)

	Fuel oil residuum	Nonresiduum
Crude, bbls./cycle day	4,000	2,000
Time efficiency, %	90	80
Combined feed, bbls./stream day	7,900	6,900
Topped crude, bbls./stream day	2,690	1,625
Ratio recycle—topped crude	1.73	3.35
Cracked gasoline, bbls./stream day	1,600	1,135
% Gasoline, per pass	20.2	16.3
% Gasoline (finished)	71.0	80.0
% Fuel oil	35.0	....
Lbs. coke/bbl.	...	42
Cu. ft. gas/bbl.	168	504

From the above data a relationship between the price of crude and the price of gasoline may be drawn if the manufacturing cost is assumed constant (A, B or C) and the price of the fuel products fixed at 1 cent per gallon fuel oil equivalent:

Let X=price of crude in dollars per barrel.

Y=price of gasoline in dollars per gallon.

For cracking to fuel oil residuum, X=29.8Y—0.23—A.

For cracking to nonresiduum, X=33.6Y—0.24—B.

For skimming to fuel oil residuum, X=14.7Y—0.08—C.

For any particular price "Y" for gasoline, the break-even price which the re-

(Continued on Page 137)

PENBERTHY PRODUCTS

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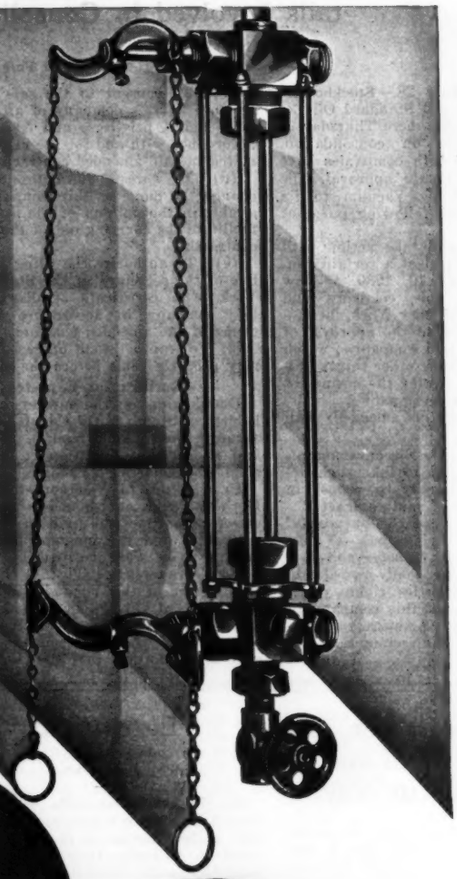

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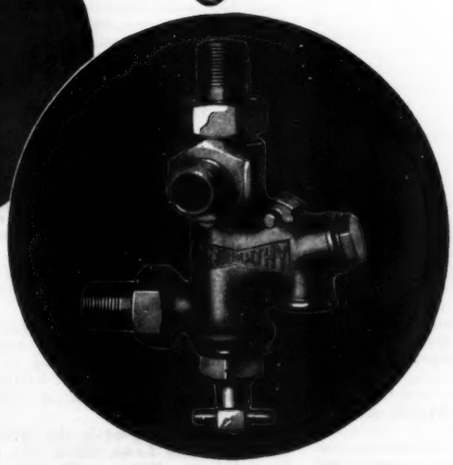

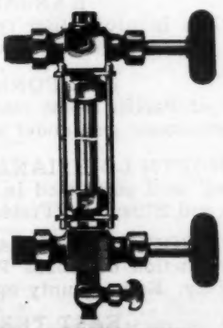

"SURE-DROP"

"SENTRY"

"SATURN"

"SCREW TOP"

"SILEX"

"SAMSON"

No Opposition to Big Oil Merger Seen

Chairman Baker of Vacuum Explains to Stockholders All Details Involved in Consolidation With Standard of New York

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, July 28.—Stockholders of Vacuum Oil Co. and Standard Oil Co. of New York will meet here Thursday of this week to vote on consolidation. Enough proxies of both companies have been deposited to assure approval. The official call issued by Vacuum to its stockholders lists the following purposes of the meeting:

1. To consider and take action with respect to the approval of a certain contract, dated January 10, 1930, as now amended, between this company and Standard Oil Co. of New York, heretofore executed subject to the approval of the stockholders of said companies, which amended contract among other things provides, in effect, for uniting the businesses and properties of said companies.

2. If said contract, as amended, shall be approved:

(a) To authorize the directors and officers of this company to take such action as may be necessary or proper to carry out the terms of said contract;

(b) To authorize, for the purpose of facilitating the carrying out of the amended contract, the transfer and conveyance to one or more wholly-owned subsidiaries, of such properties, rights, privileges, and franchises of this company in the countries of South America and elsewhere abroad as the directors may determine;

(c) To consent to the sale and conveyance by this company of all its property, rights, privileges and franchises, in accordance with and for the consideration stated in said amended contract;

(d) To vote upon a proposition to change the name of this company, if desirable in the opinion of the directors to facilitate the carrying out of the amended contract;

(e) To authorize the filing in the office of the secretary of the State of New York of a certificate of dissolution of this company in accordance with the terms of the amended contract.

3. To transact such other business as may properly come before the meeting.

Ratification Expected

Ratification of the merger by shareholders of Standard Oil Co. of New York, according to reliable reports, is assured, and no serious opposition is looked for from stockholders of Vacuum.

In a letter to Vacuum stockholders, Herbert Baker, chairman of the board of directors, outlines the position of the two companies and the merger plan as follows: "You were notified by a letter dated February 21, 1930, that the boards of directors of the Vacuum Oil Co. and the Standard Oil Co. of New York had formulated a plan for the merger of the properties of the two companies. You were also informed that the Government was about to bring a proceeding to prevent the consummation of the merger on the grounds that it would be in violation of the decree entered in 1911 in the so-called 'Standard Oil Dissolution Suit.' In deference to and pending the final outcome of the proceeding the submission of the contract to the stockholders of the companies for their action was postponed. A decision dismissing the Government's suit was entered last April and this decision became final June 4 with the expiration of the time within which the Government might appeal to the United States Supreme Court.

"The plan made provision for uniting the assets of the Vacuum Oil Co. and the Standard Oil Co. of New York under the name 'General Petroleum Corp.' or some other name mutually agreeable. It has since been decided to call the merged company the Socony-Vacuum Corp. To effect the union the name of the present Standard Oil Co. of New York will be changed to Socony-Vacuum Corp. The Socony-Vacuum Corp. will then have all of the present assets of the Standard Oil Co. of New York. The Socony-Vacuum Corp. will also acquire all the assets of the Vacuum Oil Co.

Basis of Merger Revised

"The plan originally provided that the stockholders of the Vacuum Oil Co. were to receive three shares of the capital stock of the merged company for each share of their present stock and that the stockholders of the Standard Oil Co. of New York were to receive new certificates in the name of the merged company for their present shares. This basis was arrived at after a study among other elements of the values and operations of the two companies over a period of years ending December 31, 1928. Changes in the situation during the lapse of time since then, occasioned by the protracted litigation with the Government, prompted a re-examination of the basis for the merger before submitting the plan to the stockholders of the two companies whose respective approval can alone make it effective. The ensuing review disclosed the necessity and justification for a revision of the original basis.

"The advantages of union to both companies set forth in our earlier letter, not only exists today but altered conditions have made it increasingly important to them that they combine their interests for the protection of their widespread business activities and their further development. With this in mind, and after carefully weighing the changes in the situation above referred to, the boards of directors of the two companies have agreed that the contract to be submitted

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Another Big Gasser In Tioga Field and New Wells in Wayne

WELLSBORO, Pa., July 25.—The Lycoming Natural Gas Co. has a big well in No. 1 Harrington, 1,000 feet removed from the famous Meeker well in the Lawrenceville Field in Tioga County. It is good for 24,000,000 feet and was expected to increase its production. The gas was coming from sand topped at 4,118 feet, drilled in 2 feet. The same company's No. 1 Dolly B. Place in Tioga County was reported good for 5,000,000 feet.

Decker and others' No. 1 Hoover in Wayne Village, N. Y., was completed and made 2,500,000 feet the first 24 hours. The Olean-Finger Lakes Production Co.'s No. 1 Hackett-Leonard, in Wayne Village, is a 3,000,000-foot initial producer. The Olean-Wayne Producing Co. has a 3,000,000-foot well in its No. 1 Lane in Wayne. The Tri-State Gas Co.'s No. 1 Norris, which was producing at the rate of 3,000,000 feet when the bit was lost, has since been drilled deeper without increasing production.

PRICE DISCRIMINATION BILL

AUSTIN, Tex., July 28.—Discrimination in the price of any commodity between different sections or cities "for the purpose of destroying the business of a competitor in any locality, or for the purpose of fixing the price of such commodity" would be declared unlawful under a bill offered in the house by Representatives Cox of Limestone and Farmer of Tarrant County. The bill would fix penalties ranging from $100 to $5,000 in fines, and by jail terms of 30 days to one year, and forfeits of $50 to $1,500 for each day of violation.

COLON OIL YIELD

Colon Oil Corp.'s subsidiary in Venezuela produced 150,926 bbls. of crude oil during the week ended July 17, compared with 147,967 bbls. in previous week and 88,193 bbls. in week ended July 18, 1930.

Late Fields

KANSAS

The 78 completed wells in the Ritz-Canton Pool have a potential of 116,393 bbls. a day, according to Field Umpire Lloyd R. Pickrell. It is an increase of 8,000 bbls. a day from the previous week from seven new completions. Because of the gain in the potential production the umpire has ordered a reduction in the allowable output from the field to 9 per cent of the potential, effective Monday, July 27. The allowable has been 11 per cent.

The pipe line companies have been handling approximately 11,000 bbls. of oil a day from the Ritz-Canton area under the present proration rules. Of this amount, the Shell Petroleum Corp. is handling 5,500 bbls. a day, White Eagle Oil & Refining Co. 4,500 bbls., and the balance is divided between the Texas-Empire Pipe Line Co. and the Stanolind Crude Oil Purchasing Co.

Ivan Otstot and others' No. 1 Neufeldt, SW cor. NE Section 15-21-3w, was the one hundredth well completed in the Voshell Pool, and is rated at 1,100 bbls. of oil a day from the chat at 3,020-54 feet.

New wells completed in the Ritz-Canton Field were Lario Oil & Gas Co.'s No. 2 Wiggers, NW cor. NE Section 36-19-2w, rated at 1,999 bbls. of oil a day from the Viola lime at 3,388-98 feet. Same company's No. 2 Suffield, SW cor. SE Section 25-19-2w, was standing full of oil from the Viola lime topped at 3,385 feet, where the drilling stopped to land casing.

United Petroleum Corp. and T. C. Johnson's No. 1 Shaw, NW cor. SW Section 21-19-1w, is estimated at 30,000,000 feet of gas a day from the chat topped at 2,909 feet, where the casing was being cemented. After being cemented it will be drilled deeper into the formation. It is the seventh gas well completed on the east side of the Ritz-Canton Field.

The Magnolia Petroleum Co.'s No. 1 Klassen, NW cor. SE NW Section 21-19-1w, was drilling out the cement plug at a total depth of 2,915 feet. The test is located less than a quarter of a mile west of the townsite of Canton.

The Stanolind Oil & Gas Co.'s No. 2 Zerger, NE cor. SE SE Section 16-21-3w, in the southern part of the Voshell Pool, has increased its production from 100 bbls. a day to 50 bbls. of oil an hour, or a potential of 1,200 bbls. a day. The crew is fishing for a core barrel which was lost in the hole. Before the core barrel was lost the well had increased to 480 bbls. of oil a day and it later increased to 1,200 bbls. a day.

The Carter Oil Co.'s No. 1 Everett, C NE Section 2-29-12w, a wildcat test in Ford County, was drilling at 5,432 feet with nothing showing.

In Rush County, Boyle & Grossman's No. 1 Greenwalt, C SW Section 17-19-16w, south of the recently completed gas wells in the area, was drilling at 3,745

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High Spots in Field News

SOUTHWEST TEXAS

Heavy rains prevent completion of wildcats in Goliad and Jim Wells Counties, which are center of interest.

OKLAHOMA

Production shows drop of 39,000 bbls. daily as result of widespread shutdown in protest against low prices for crude.

GULF COAST

Another blowout halts work on Vacuum's important wildcat on Calcasieu-Jefferson Davis Parish line, a geophysical prospect.

KANSAS

Further decline in production reported, attributed chiefly to shutdown plan. Eastborough Pool, Sedgwick County, extended.

CALIFORNIA

Oil industry of Pacific Coast sees prospects of a hard winter unless decided movement gets under way within next two months.

NORTH LOUISIANA-ARKANSAS

W. M. Coates' well completed in Sabine Parish indicates area between Zwolle and Blue Lake Fields may be producing territory.

ROCKY MOUNTAIN AREA

Allowable production of Hobbs Pool increased 2,000 bbls. for second half of July. Eddy County operations almost at standstill.

EAST TEXAS

Pipe line companies continuing to solicit connections in the district and crude prices show slightly increased strength. Humble and Magnolia have connected to about 100 outside leases.

Pipe Lines Seek East Texas Connections

Humble and Magnolia Have Provided Outlets for About 100 Outside Leases and Many Others Busy. Prices Strengthened

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., July 27.—Pipe line companies continue to solicit connections in the East Texas district, and prices have strengthened a little over last week, though not running over the 20-cent posting of Magnolia Petroleum Co. The Humble Oil & Refining Co. and Magnolia Petroleum Co. have connected to around 100 outside leases recently, and the Sun Pipe Line Co. which has a gathering system completed in the Gregg-Rusk County areas, and is now building a 10-inch line to Beaumont in connection with the Yount Lee Pipe Line Co., has made over 40 connections. The Texas Pipe Line Co. and the Atlantic Pipe Line Co. are connecting to many leases each week.

Connecting with many outside leases has given encouragement to the producers in the district. Increases in the price of crude in other parts of Texas and the Mid-Continent also have improved the situation, but as long as the producers continue to sell their oil for whatever price they can get for it, the pipe line companies cannot be expected to pay more than necessary to supply their demands. The cheap price of the commodity is the main reason for the completion of many large trunk lines into the district, increases in tank farm facilities, and the leasing of steel storage for the storing of cheap crude in local storage as well as storage on the Gulf Coast.

The Co-operative Sales Agency referred to last week may be of material benefit in bringing better prices in the district owing to the fact that the agency will sell to the majors, but many independent producers will pool their production and be in a better position to negotiate for better prices, instead of selling wherever they can and as much as they can for whatever price they can obtain, just to get ready cash to pay outstanding obligations. The major purchasing companies are reported as being friendly to such an organization, and lending it encouragement.

House Bill No. 14 introduced in the state legislature in Austin on July 23 is designed to allow the formation of such co-operative associations as planned for East Texas, and while the passage of this bill would remove any doubt as to the legality of the proposed East Texas Oil Producers Sales Agency, it is believed that the agency would not violate present laws under which cotton and other commodities are handled co-operatively.

Majors Buying Acreage

Major oil companies have been purchasing acreage during the last week in the district, many of these smaller tracts being situated adjacent to the companies' blocks or acreage, enlarging their holdings, and at the same time cutting down the number of offset locations and producers. One of the largest deals of this kind now under negotiation involves around 1,500 acres belonging to Cranfill & Reynolds, the Atlantic Oil Producing Co. having an option on the property for a reported price of $1,500,000.

Following are some of the sales reported in the last week:

Humble Oil & Refining Co. purchased 123.75 acres from H. L. Hunt, Inc., the J. Wooley farm in the T. J. Martin Survey, Rusk County, $1,000 cash being the reported price.

Louis Sikes is reported to have purchased a 10-acre lease on the Rodden farm, J. R. Crozby Survey, 35 acres of the R. J. Sanders farm in the T. Allen Survey, three-fourths of a mile northeast of Gladewater in Gregg County, and 25 acres of the H. W. Mayers farm in the A. T. McGee Survey, Upshur County. All of this was purchased from the Simms Oil Co.

Humble Oil & Refining Co. also purchased 175 acres from the Danciger Oil & Refining Co., paying $750 cash and $750 out of 35 per cent of the oil, according to reports.

The Darby Petroleum Co. is reported to have purchased 97 acres from the Cordova Union Oil Corp. in the Christian and McCabe Surveys, Rusk County, for a reported consideration of $88,000 cash and $100,000 out of one-fourth of the oil. One well is now producing on the lease.

Humble Oil & Refining Co. also purchased 28 acres on the Caben farm in the G. W. Hooper Survey in the Lathrop area, Gregg County, for $750 cash per acre, plus commission.

Magnolia Petroleum Co. purchased 38 acres of the H .P. Leverette farm in the Meredith McCabe Survey, Kilgore Pool, Rusk County, for $115,000 cash. There are two producing wells on this lease. The company also purchased 14 acres of the Christian farm in the G. W. Hooper Survey, for $1,000 cash, plus commission; the north 40 acres of the Green farm in the Hooper Survey, Gregg County, and two other properties near its Free lease in the same survey, but across the county line in Upshur County. The same company purchased 53 acres of the Miller farm in the Collard and Pinney Survey, lying in the northern part of the Joiner Pool, Rusk County. The reported price was $900 per acre.

The Texas Company purchased 30.5 acres of the George Rodden farm in the Martha Dillard Survey, south of Gladewater in Gregg County, for a reported consideration of $350 per acre. The company also purchased 20 acres in the J. R. Crosby Survey, in the same area, paying $20,000 cash.

The Magnolia Petroleum Co. purchased 149 acres from the McMillan Oil Corp. located on the B. Barton farm in the McCabe Survey, Kilgore Pool, Rusk County, for a reported consideration of $1,000 cash per acre. The company also purchased eight small tracts from the Woodley Petroleum Co. in Gregg County, comprising a total of 235 acres, for a cash consideration of $1,000 per acre and $500 per acre out of one-fourth of the oil, plus inventory on development.

The Shell Petroleum Corp., Gulf Production Co. and other major companies are reported to be purchasing undrilled proven properties in the district for $1,000 per acre cash and $1,000 per acre in oil. Many deals have been consummated on such acreage, but have not been filed for record. Smaller companies and independent operators who cannot see their way clear to drill and produce their properties are getting out from under same by selling to the larger companies who are in position to operate the leases.

Smaller Producers Less Active

The smaller producers have slowed down on staking locations and in drilling activities, but the major operators continue their activities in this line, the Humble Oil & Refining Co. staking 13 for the week, Magnolia Petroleum seven, Gulf Production Co. four, Sun Oil Co. four, Yount Lee three, Sinclair Oil & Gas Co. two, Continental Oil Co. two, Shell Petroleum Corp. three, and Stanolind Oil & Gas Co. three. Sixty-nine locations were staked in the district during the week, 61 of these being in Rusk and Gregg Counties.

There are now 155 drilling wells in the Lathrop area, Gregg County, 168 drilling in the Kilgore area and 136 in the Joiner area. The Joiner area led in first reports this week with a total of 28 while the Kilgore area only received 5 and the Lathrop Pool 18. The Lathrop area, however, led in completions, 31 reported for the week. There were 20 reported in the Kilgore area and 29 in the Joiner area. There are 81 wildcat tests drilling in the district, with five new locations staked, and two completed. Eight wildcats are drilling in Upshur County and 10 are being put down in Smith County.

Daily average production took another climb this week showing an average of 507,679 bbls. from 1,323 wells.

Production jumped almost 100,000 bbls. per day this week owing to operators and companies alike flowing their wells wide open on many leases, gas flambeaus being mute evidence that the lease owners are flowing their wells to capacity, observing no conservation rule, but straining to get all oil possible out of the ground as fast as it can be withdrawn. Although crude prices have risen in Kansas, Oklahoma and other parts of Texas, and purchasing companies are scrambling for connections an increase in crude prices in East Texas looks improbable at this time while production is increasing at such a rapid rate. Shutting down wells in other districts may act to stimulate prices in the district, but that seems like the only chance for bringing about a raise.

Water Defining Area

The western side of the Lathrop and Gladewater areas, Gregg County, is now being more clearly defined by water showing in wells on the Cole lease in the Sam Brooks Survey. Sinclair Oil & Gas Co.'s No. 5 Cole topped the sand at 3,584½ feet and was shut down at 3,586 feet making no oil, subsea datum on top of sand being 3,322½ feet. This is evidently a dry hole unless the hole is considerably off vertical, which has not been reported. Magnolia Petroleum Co.'s No. 1 Cole, an east offset to the Sinclair well, topped the sand at the same depth, 3,584½ feet and when making 300 bbls. per day shows 18 per cent sediment. Opened five minutes it began showing salt water.

Chapman's No. 1 Russell in the Joseph English Survey, north of Overton and southwest of the Kilgore Pool, Rusk County, showed 15 per cent salt water and 4 per cent basic sediment on a test, making 70 bbls. oil per hour. This is a semidefining marker on the western side of this pool.

Stanolind Oil & Gas Co. and Weaver's No. 1 Everett in the W. Goodwin Survey, north of Gladewater in Upshur County, now goes dead every third day. When it is opened on one-half to three-fourths-inch choke it makes a head of 40 to 50 bbls. pure salt water, then makes oil. When cut back to one-sixteenth-inch choke it makes 125 bbls. per day, of which 35 per cent is salt water, showing an increase in water and a decrease in oil production.

Magnolia Petroleum Co. completed one of the best wells yet drilled in the Lathrop area, Gregg County, when its No. 1 C. Davis located in the Henry Hathaway came in making 1,122 bbls. in one hour through tubing and casing at a total depth of 3,585 feet. Saturated sand was topped at 3,569 feet. Elevation is 393 feet.

The Humble Oil & Refining Co. drilled two wells on its Crim lease in the Sevier Survey, Kilgore Pool, its No. 32 Crim going to 3,625 feet without flowing. The well will be deepened, but is near the water level as is No. 33 Crim which was drilled to 3,644 feet and did not flow.

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EAST CENTRAL TEXAS WILDCATS

Week Ending July 27

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
Riango Oil Co.'s No. 1 J. Lynn, 1,400 ft. from NE line and 7,425 ft. from E line of survey, R. Brown Sur.	Shut down 2,040 ft.
H. B. McConnell et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S half of 129-ac. tract, M. Main Sur.	Derrick.

ANGELINA COUNTY

R. O. Moore's No. 1 Abney Estate, 50 ft. N of Blk. No. 6, immediately out of city limits of Lufkin	T. D. 1,350 ft.; set 6⅝-in. csg.; bailed dry.
Pollick Oil Co.'s No. 1 Sessions, 1,250 ft. from N and 1,250 ft. from E line of Jesus De La Garza Sur.	Shut down 1,925 ft.

BOWIE COUNTY

Tom Bell's No. 1 Merritt, 1,225 ft. from N and 875 ft. from E line of survey, T. S. McKinney Sur.	Shut down 2,650 ft.
Parkering-Jones et al's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur.	Shut down 20 ft.
Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur.	Salt water on drill stem test; shut down 3,000 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, James Dill Sur.	Rigging up.
Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Shut down.
Helen-Clare Oil Co.'s No. 1 Mrs. M. P. Perkins, 1,800 ft. from N and 450 ft. from W of survey, Thomas Stafford Sur.	Rig up.
William A. Stone's No. 1 Blount Decker, 900 ft. E of E line of S. Selman Sur. and 1,200 ft. S of N line of E. M. Decker 406-ac. tract in George Ruddle Sur.	Fishing 5,406 ft.
Walton Oil Co.'s No. 1 E. Singletary, 250 ft. W and 150 ft. N of NE cor. of M. Lacey Sur. and in Walters Sur. on Singletary 84-ac. tract	T. D. 2,960 ft.; shut down.

DALLAS COUNTY

Paris' No. 1 Wilkinson, 2,787 ft. from NW and 3,241 ft. from SW of John P. Anderson Sur.	T. D. 870 ft.; shut down.

DELTA COUNTY

D. S. Hood's No. 1 J. J. Balser, 185 ft. from S and 880 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur.	Shut down 1,550 ft.

ELLIS COUNTY

E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 510 ft. from S of Orland	Shut down 1,360 ft.; drill stem in hole.

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Higher Oil Prices Brighten West Texas

Producers Cheered by Improved Conditions. North Texas and Panhandle Operators Also Encouraged by Better Postings for Crude

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., July 27.—Prices in West Texas have risen again, much to the gratification of producers in that district. Winkler, Pecos, Crane-Upton, Crockett, Ector, Howard-Glasscock and Lea County, New Mexico, crude is now bringing 25 cents per barrel whereas before the new postings were announced it was bringing a flat price of only 10 cents per barrel. All major purchasers in the district have met this posting.

Oil from the Toborg-Tippett shallow pool in Pecos County is now back to 12 cents per barrel, after having dropped to 6 cents, the lowest figure ever paid for oil produced in the Permian Basin. When the Shell Petroleum Corp., which was purchasing this oil, dropped the price to 6 cents per barrel the State, which owns an interest in part of the lands in this pool, announced that it would not accept the price for its royalty oil. However, none of the wells was shut in. As the price is now back to 12 cents per barrel there probably will be no litigation over the existing price, the oil being of lower gravity than is produced in the other pools of the district and produced from formations which are found from 375-500 feet.

Levi Smith, president of the Big Lake Oil Co., Reagan County, has quoted figures on production of five of the deep wells in the Big Lake Pool, stating that only 20 per cent of the potential oil yield and 28 per cent of the potential gas flow of the five wells is being produced at the present time, establishing a gas-oil ratio of 3,726 feet of gas to each barrel of oil. Two of the Big Lake Oil Co.'s five deep wells and two of Group No. 1 Oil Corp.'s four deep producers are shut in indefinitely as a conservation measure. Price of the oil from these deep producers was raised from 19 cents to 35 cents in line with other increases in crude prices in the district. This increase reflects a gain over the former price, which was only 31½ cents per barrel.

Texas Completing Line

The Texas Pipe Line Co., which is completing a lateral line from the pool to its pump station on its main line at Iraan in the Yates Pool, Pecos County, is now erecting a pump station in the Big Lake Pool. The line will be tested this week, and is scheduled to start running oil the latter part of the week. The oil will be run to the Republic Refining Co.'s plant on the Houston Ship Channel.

Wesner and others' No. 1 Nicks in Schleicher County, the most interesting test in the district for the last two months, has been standing shut down at 4,042 feet, swabbing dry on July 25, showing one-third oil and two-thirds water on the swabbing tests, indicating that there has been no increase in oil obtained in drilling from the former depth of 4,006 feet to 4,042 feet. The test probably will be drilled to around 5,000 feet, at least to test the oil showing which was encountered in the Phillips Petroleum Co.'s No. 1 Gulden test to the northwest. Eight and a quarter-inch casing will be underreamed from 4,006 feet to the bottom of the hole when the test goes into shale. Water is coming from 2,900 feet, and the 8¼-inch casing will be set to shut off this water.

From 700 to 800 bbls. of oil is being run daily from the Pecos Valley Pool, Pecos County, to the Wickett Refining Co.'s refinery at Wickett in Ward County, following almost a year's shutdown in the pool. The wells have been shut down since around 30,000 bbls. steel storage was filled, and as soon as this quantity in storage is dissipated the wells will be put back on production.

Connects With Wickett Line

The Messenger Pipe Line Co., organized by C. S. Messenger and other producers in the pool, constructed over 17 miles of combination 2-3-4 inch line from the pool to connect with the Wickett Pipe Line Co.'s 4-inch line in the Grand Falls Pool, southern Ward County, from which it is run to the refinery at Wickett. The combination line has a capacity of 1,000 bbls. daily.

Landreth Production Co.'s No. 1 Allen in southwestern Gaines County, another important test for the Permian Basin, is drilling below 4,770 feet with no change. Two and a half bailers of sulphur water per hour were struck at 6,425-37 feet. A scum of dead oil was picked up at 4,622-27 feet. The well is located in Section 2, Block A-30.

The Texas Company's No. 1 Jean, a mile northeastern extension to the Royston Pool, Fisher County, is estimated good for around 500 bbls. daily from sand logged at 3,089-91 feet and 3,103-05 feet. The well is now shut down while lease storage and connecting lines are erected and laid to the well. The well gauged 70 bbls. the first hour while the well was being cleaned out, the second hour's gauge showing it making an increase to 80 bbls. It is located 400 feet from the south line and 380 feet from the east line of Section 201, Block 1, B.B.B.&C. Survey, a mile northeast of Cranfill and Reynolds' producing wells.

Paying Posted Prices in Wichita Falls

Independent refiners now are paying posted prices in the Wichita Falls district, following The Texas Company's and Humble Oil & Refining Co.'s prices of 35 cents for all oil below 36 gravity and 40 cents for 36 gravity and above. The Wagoner Refining Co., Dale Oil & Refining Co., American Refining Co. and Olney Refining Co. met the postings on July 23 and 24.

Panhandle operators were given more encouragement this week when the price of crude in Carson and Hutchinson was increased to 27 cents and Gray County crude was advanced to 30 cents. Refineries and purchasers in the district have been soliciting more oil, giving connections to wells which have been without connections for some time, in some cases several months, and the situation in this district, as well as the Wichita Falls district, has improved in the last three weeks.

Some of the operators in the latter district have shut in their wells regardless of the advance to 40 cents for the oil in that district, and have stated that they would run only a small percentage of some of their wells, letting the others remain shut in until a still better price is offered by the purchasing companies. As a result of this move on the part of many operators pipe line runs from the district during the last week showed a decrease of over 3,300 bbls. per day.

WEST TEXAS PRODUCTION
Week ending July 25

County—	Wells	Prod.
Andrews	3	....
Crane	377	14,865
Crockett	51	1,376
Ector	78	7,439
Fisher	11	570
Garza	2	10
Howard-Glasscock	543	26,942
Irion	9	58
Jones	86	1,439
Loving	42	3,074
Mitchell	111	1,837
Pecos	547	72,372
Reagan	255	26,522
Runnels	5	70
Scurry	5	....
Upton	261	4,621
Taylor	3	70
Ward	65	2,755
Winkler	595	41,982
Total production this week		206,002
Total production last week		205,409
Increase		593

COMPLETIONS IN WEST TEXAS

Crane County

Sides' No. 1 Nolen, dry and abandoned, total depth 2,046 feet.

Loving County

Grisham, Hunter and others' No. 1 Capitala Syndicate, dry and abandoned, total depth 4,343 feet, top salt 2,440 feet, elevation 2,655 feet.

Rush, Anderson and Moore's No. 1 Wheat, location abandoned.

Pecos County

Honolulu Oil Co. and others' No. 1 Webb, dry and abandoned, total depth 3,098 feet.

Perren and others' No. 2 Eaton, dry and abandoned, total depth 1,765 feet.

(Continued on Page 40)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending July 27

CARSON COUNTY

Company, well, farm name, section and block—	Remarks:
Deep Lake Oil Co.'s No. 1 Keys, NE cor. SW, Sec. 1, Blk. 4, L&G.N. Sur.	Drlg. 3,125 ft.
421 Paso-Amarillo O. & G. Co.'s No. 1 Chapman, 594 ft. S, 1,458 ft. E, Sec. 7, Blk. 3, A.B.&M. Sur.	Rig.
Empire G. & F. Co.'s No. 1 Poling, 1,320 ft. S and W, Sec. 28, Blk. Y-2, T.T.R.R. Sur.	Bldg. rig.
The Texas Co.'s No. 1 Crutchfield, 1,320 ft. S, 1,321 ft. E, Sec. 29, Blk. 4, L&G.N. Sur.	Drlg. 1,925 ft.

CHILDRESS COUNTY

C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	Top pay 2,498 ft; swbd. 15 bbls. oil; approximately 1,200 ft. oil in hole; S.D. 2,503 ft.

COTTLE COUNTY

Darby Oil Co. and Merry Bros. & Perrin's No. 1 Richards, 330 ft. NE, Sec. 18, B.S.&F. Sur.	Drlg. 4,970 ft.

GRAY COUNTY

Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 3, L&G.N. Sur.	Rig.
Back & Barber's No. 1 Back, 330 ft. S and E, SW, Sec. 45, Blk. 25, H.&G.N. Sur.	Location
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur.	Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, L&G.N. Sur.	S.D. 980 ft; trying to pull 8-in. csg.
Danciger O. & R. Co.'s No. 1 Barnett, 231 ft. S, 330 ft. W, E½ of N 56 ac., Sec. 136, Blk. 3, L&G.N. Sur.	5,000,000 ft. gas 3,097 ft; S.D. 3,097 ft.
Humble O. & R. Co.'s No. 1 Hughey, C NE, Sec. 154, Blk. 3, L&G.N. Sur.	Material.
Parton Holt and Shell Pet. Corp.'s No. 1 Morse, 330 ft. S and E, Sec. 6, Blk. 26, H.&G.N. Sur.	Rig.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur.	S.D. 2,770 ft; P.B. 2,430 ft. and shot with 80 qts. 2,409-30 ft.; C.O.
Magnolia Pet. Co.'s No. 1 Heaston, NE cor. S½ NE. Sec. 164, Blk. 3, L&G.N. Sur.	Rig on ground.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur.	S.D. 2,619 ft.

(Continued on Page 146)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending July 27

ANDREWS COUNTY

Company, well, farm name, section and block—	Remarks—
Deep Rock Oil Co. et al's No. 1 Kuykendall, 2,310 ft. from N and E of SW cor. Sec. 24, School Blk. A-46.	Shut down; total depth 4,648 ft.; plugged back to 4,565 ft.

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Shut down 2,830 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south Alpine	Shut down 1,750 ft.

COCHRAN COUNTY

Penn Oil Co.'s No. 1 Myrick, C Labour No. 80 of League 129, Carson County School Lands	Moving in material.

CONCHO COUNTY

Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur.	Shut down 267 ft.
Betts & Dennis' No. 1 H. E. Woods, 710 ft. from E and 150 ft. from S Sec. 3, E.E.&W.T. Sur.	Shut down 80 ft.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,850 ft.

CRANE COUNTY

Southwest Oil Prod. Co.'s No. 1 Tubbs, 2,310 ft. from NW and SW Sec. 3, Blk. B-27, P.S.L. Sur.	Location.

CROCKETT COUNTY

Doleman & Moore's No. 1 Ferner, 3,125 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 3, L&G.N. Sur.	Spudded and shut down.

CULBERSON COUNTY

Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land	Shut down 1,280 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, E.L.&R.R. Sur.	Spudded 20 ft. and shut down.

ECTOR COUNTY

H. F. Wurts' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 2s, G.M. M.Br.&A. Sur.	Shut down 3,275 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.P. No. 7,347	Show gas 795 ft.; shut down 1,200 ft.

(Continued on Page 149)

Everywhere

At present fuel oil and straight-run gasoline are plentiful and hard to sell, but cracking produces superior products which easily show a satisfactory profit even at the prevailing low prices—*PETROLEUM TIMES,* London, June 6, 1931

Of course, it was a Dubbs plant under discussion—a 3000-barrel unit in Egypt

It's just as true everywhere

In Pennsylvania, California, Oklahoma, Europe, Asia, Africa and the islands of the sea, Dubbs cracking is the real way to make good gasoline, salable at a profit

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Pipe Line Construction News

SAN DIEGO STILL AFTER NATURAL GAS PIPE LINE

SAN DIEGO, Calif., July 27. — San Diego still is hopeful that its efforts to get natural gas will be realized through construction of a pipe line from a terminal of the Southern Counties Gas Co. Negotiations are under way between the city authorities and officials of the Consolidated Gas & Electric Co. Recently the company advised the city council that it had hopes of making a definite announcement within 60 days. The Consolidated has had conversations with interests which bring Kettleman Hills gas to Los Angeles, but nothing definite has been given out.

More than a year ago a line to San Diego was planned. It was to be an extension of the Southern Counties Gas Co.'s line from its terminal at Huntington Beach. Just as work was almost ready to start the gas supply in the southern fields began to fall off rapidly, and the project had to be abandoned. While it has been understood that there was some difference between the companies interested as to the price to be paid, it is believed that the impending shortage of gas in the south was the determining factor in the abandonment of the project. With one pipe line finished and another under construction between Los Angeles and Kettleman Hills this obstacle is removed.

Since the first plan to furnish San Diego natural gas was abandoned, the Southern Counties Gas Co.'s line has been extended to San Juan Capistrano, Dana Point and San Clemente. The southern terminal is thus within about 60 miles of San Diego. Oceanside is the next point of consumption, 20 miles south of San Clemente. La Jollo is part of San Diego so that the distance to the city limits is less than the 60 miles which would bring the line approximately to the business center of the city.

Since the former negotiations for natural gas the San Diego Gas & Electric Co. has itself built a line for the avowed purpose of supplying artificial gas from its principal plant at San Diego to Carlsbad, Encinitas, and Oceanside. With this line in operation there will remain only about 20 miles to build between San Clemente and Oceanside whenever the purchase of natural gas has been completed. The artificial gas line can be used for the natural gas service.

San Diego has at present practically no industries, except the electric light and power service and the street cars, owned by the San Diego Consolidated Gas & Electric Co. or subsidiary companies. Domestic service probably would extend to Coronado, Chula Vista and National City, and possibly to Tiajuana.

ARROWHEAD PIPE LINE IS ALMOST COMPLETED

SAN BERNARDINO, Calif., July 27. Southern California Gas Co.'s 8-mile extension of its line from Arrowhead Springs Hotel to Lake Arrowhead is expected to be in full operation within a few days. The line is 4 inches in diameter and follows the old Daley road built by the Mormons in pioneer days over which Bear Valley was reached by wagon before the advent of automobiles.

There will be a 2-inch distribution line connecting with hotels, residences and business houses of Arrowhead Village and the surrounding country.

The line to Lake Arrowhead is expected to be the first link in a line to extend the Big Bear Valley and to connect with the various resorts of the San Bernardino Mountains. Among those which will be served when the line is extended will be Pinecrest, Squirrel Inn, Green Valley and Big Bear.

PIPE LINE PROJECTS IN EAST TEXAS UNDER WAY

FORT WORTH, Tex., July 27.—The Southport Refining & Exporting Co. of New Orleans, La., and the Looboyle Refining Co. of Tulsa are laying a gathering system of combination 6 and 8-inch lines in the Gladewater area, Gregg County, and will build a loading rack at Gladewater.

The Lion Oil & Refining Co. is laying 12 miles of 6-inch line from Turnertown to Kilgore to connect with the Magnolia Petroleum Co.'s gathering system at that place, going into the company's main line at the pumping station near Longview. This 12-mile line will be second hand pipe.

The Superior Oil Co. of California will lay a 6-inch line from the Gladewater area to a 25 car loading rack on the T.&P. Railroad near Gladewater for the purpose of shipping out its own production.

SURVEYORS WORKING ON IRAQ EUPHRATES LINE

WASHINGTON, D. C., July 27.—Information has been received in this country concerning the route of the pipe line to be built by the Iraq Petroleum Co. One surveying party is now in the field between the Iraq frontier on the west and the Euphrates. A second party has landed at Beirut. The Iraq Petroleum Co. has formed a subsidiary company to construct the pipe line.

The Iraq government has insisted that the pipe line shall pass the Euphrates between Haditha and Hit, and touch Rutbah wells, as the government expects the line will be a feeder to the proposed Baghdad-Haifa Railroad.

The line will be laid in a southwesterly direction and will cross the Tigris somewhere north of Samarn. One line will go to Tripoli and another to Amman. The pipe to be used will be of 14-inch diameter and will be buried on most if not all the way.—C.E.K.

RUSTON TO LAY GAS LINES

RUSTON, La., July 27.—By a vote of more than 10 to 1, Ruston citizens voted a $180,000 bond issue to construct a municipal pipe line and distributing system to provide consumers here with natural gas. Actual construction work on the city project is expected to begin within 30 to 60 days. Several months ago a conference of mayors and city officials of towns served by the Peoples Gas & Fuel Co. was held in Ruston when reduced rates on gas were sought. Reductions were granted to some towns, but the rate for Ruston was not cut. The movement for a municipally owned gas system here was the outcome of this conference.

FRANCHISE AWARDED GUFFEY

Roy Guffey of Baird, Tex., has acquired a 30-year franchise to supply that town with natural or manufactured gas at the domestic rate of 50 cents gross, or 45 cents net, per 1,000 feet. According to the contract, Mr. Guffey will have to establish and maintain a distribution system. Construction of these mains must start in 90 days as per the franchise. The Lone Star Gas Co., which has been supplying the city with gas, has a rate of 75 cents gross and 67½ cents net per 1,000 feet.

LINE TO INCLUDE NEW AREA

SAN FRANCISCO, Calif., July 27.—The Coast Counties Gas & Electric Co. will build a $43,000 extension from Walnut Creek to the towns of Danville, Alamo and Diablo, Contra Costa County.

EXTENSION OF IROQUOIS LINE IS NOW UNDER WAY

PENN YAN, N. Y., July 27. — Seven miles of the 43-mile pipe line extension of the Iroquois Gas Co., into the Wayne natural gas field is already under construction, and with good weather, it is expected that the entire line will be completed before December 1, 1931.

The Belmont Quadrangle Co., of Bradford, Pa., one of the largest operators in the Wayne gas district, and the owner of 26 producing wells, has the contract for construction of the pipe line.

An official of the Belmont company stated that the Iroquois company has contracted to purchase all the gas produced by the Belmont company in the Wayne Field. At present the latter has wells capable of producing 110,000,000 feet at open flow.

An 8-inch line is being laid from near Dansville to the Wayne Field. This line will connect with the Iroquois system in Erie County.

The Iroquois has been supplying natural gas to the city of Buffalo and vicinity for years, but the supply of gas in that section is limited. Following the development of the Wayne Field, officials are arranging for gas from that area. Most of the gas will be used in Buffalo.

CONTRACTS AWARDED

Benson & Henderson Pipe Line Construction Co. was awarded the contract to lay the distribution gas lines in Guthrie, Okla., by Western Service Corp.

Roger O. Moore & Co. was awarded a contract by Western Service Corp. for a gas line from Oklahoma City to Guthrie, Okla.

Great Lakes Pipe Line Co. expects to let bids on approximately 120 miles of gasoline line from Oscela, Iowa, to its terminal in Omaha, Neb. The line will be principally 4-inch but there will be some 6-inch.

ORDERS PIPE FOR TEXAS LINE

PITTSBURGH, Pa., July 27.—A pipe line subsidiary of the Atlantic Refining Co. has ordered, for an oil line in Texas, 180 miles of 10¾-inch seamless, about 15,000 tons, from National Tube Co. This makes nearly 100,000 tons of line pipe buying reported in the last four weeks, in five orders, and with various small orders being placed from time to time the total would exceed 100,000 tons.

HIGH WATER DELAYS WORK

WELLSBORO, Pa., July 27. — High water is delaying the laying of the Pennsylvania Power & Light's pipe line from the Tioga Field of the gas development area into Williamsport. A total of about 3 miles has been laid to date with 56 miles yet to go. The ditch has been dug 5 miles.

PLAN GAS LINE TO MEETEETSE

CODY, Wyo., July 27. — Stamm & Wilke, of Cody, have applied for a franchise to supply natural gas to the town of Meeteetse in Park County, Wyoming. It is not stated where the gas will be obtained, but there is an ample supply at both Oregon Basin and Buffalo Basin.

NORTHWESTERN EXTENDS LINE

SEATTLE, Wash., July 27. — Northwestern Natural Gas Co. is starting a 20-mile extension of its line in Benton and Yakima Counties to supply gas to Kennewick and Pasco where there is a combined population of about 5,000.

PIPE LINE VALUATIONS ADVANCED IN OKLAHOMA

OKLAHOMA CITY, Okla., July 27.—Adopting recommendations of the state tax commission, the state board of equalization has tentatively increased 1931 assessments on 47 pipe lines and gas companies $14,000,000 over the 1930 assessments. The greatest increase was nearly $2,500,000 on property of the Stanolind Pipe Line Co., Tulsa. The Prairie Pipe Line Co., of Independence, Kans., saw its assessment raised nearly $1,000,000.

Only one company—the Texas Pipe Line Co., of Houston—received a lower tentative assessment. Upon motion of Governor Murray with three board members dissenting, the tentative valuation was dropped from $3,478,690 to $3,439,095.

Assessments for 1930 and tentative assessments for 1931 for the larger companies follow:

Public Service Co., of Oklahoma, Tulsa, $10,880,291; $15,673,020.

Southwest Pipe Line Co., Bristow, $96,495; $130,467.

Champlin Refining Co., Enid, $1,058,056; $1,107,912.

Cities Service Gas Pipe Line Co., Bartlesville, $1,744,145; $2,449,260.

Cities Service Gas Co., Bartlesville, $5,986,380; $7,997,981.

Empire Pipe Line Co., Bartlesville, $2,256,770; $2,863,618.

Consolidated Pipe Line Co., Tulsa. $305,846; $371,100.

Pierce Pipe Line Co., Tulsa, $494,218; $538,612.

Continental Pipe Line Co., Ponca City, $1,081,285; $1,742,580.

Cosden Pipe Line Co., Tulsa, $2,425,343; $3,021,234.

Gulf Pipe Line Co., of Oklahoma, Tulsa, $4,693,544; $5,162,400.

Kansas-Osage Gas Co., Ponca City, $595,915; $729,492.

Magnolia Pipe Line Co., Dallas, $3,309,910; $4,785,156.

Oklahoma Pipe Line Co., Muskogee, $8,866,112; $9,900,213.

Prairie Pipe Line Co., Independence, Kans., $15,929,930; $16,890,097.

Shell Pipe Line Co., St. Louis, $4,676,495; $6,326,420.

Texas-Empire Pipe Line Co., Houston, $1,066,170; $1,807,935.

Stanolind Pipe Line Co., Tulsa, $7,814,860; $11,007,010.

DUFRESNE ISSUES STATEMENT

QUEBEC, Canada, July 27.—In connection with recent reports that United States operators are planning a $2,000,000 drilling and pipe line development in the St. Lawrence Valley, Quebec, J. C. Dufresne, superintendent of the Quebec provincial mines department, has issued the following statement: "One company, the Hope Engineering Co. of New York, has leased land at St. Denis, in Richelieu County, and is at present engaged in sinking a well. So far, no reports as to progress are available. Reports of Quebec provincial geologists, supported by American engineers, indicate that natural gas and oil may be found, but at considerable depth, in the territory along the shores of the St. Lawrence River, from Quebec to Three Rivers."

START RUNNING GAS

The Texas Public Service Co. (Oklahoma Natural Gas Corp.) has started running gas through its 8-inch pipe line from the deep producing wells in the Big Lake Field, Reagan County, to the Pecos Valley Power & Light Co.'s plant on the Pecos River, near Girvin, running around 1,700,000 feet per day at the present time. The 12-inch line from the same field to San Angelo is delivering around 2,000,000 feet per day to consumers in that city. Both lines were completed recently.

Announcing!

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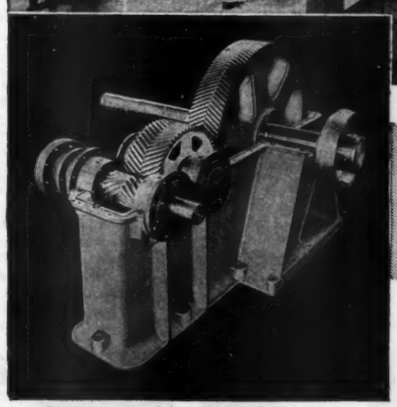
a new unit by Lufkin FOR CABLE TOOL DRILLING AND PUMPING



Gear cover removed from the new Lufkin Universal Geared Rig Front.

A Standard Rig With Geared Efficiency

Meeting the demand for a geared standard rig for cable tool production, the Lufkin Universal Geared Rig Front has met with instant acceptance and approval by Oil Company Engineers everywhere. The New unit is especially adaptable for single cylinder engine operation and is equipped with a counter-balance crank having outstanding advantages.

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Henderson, Tyler, Longview. ~ ~ ~

EAST CENTRAL TEXAS

(Continued from Page 33)

It too will be deepened. Drilling of these wells to such depths, the wells refusing to flow, is conclusive proof that the pressure has greatly declined in the pool, and that pumping of the wells is nearer to realization.

Production Increasing

Total production of the East Texas district since discovery is now near the 40,000,000-bbl. mark, with the districts' production increasing each day and week, and total pipe line runs amounting to over 3,040,000 bbls. during the week, including runs to local refineries and shipments by tank cars.

One of the most interesting tests in the district at the present time is McMahon and McCullough's No. 1 Hamilton in the M. Chandler Survey, approximately 1 mile south of the D'Armand dry hole, and almost 2 miles north of production in Upshur County. It had Pecan Gap chalk from 2,522-3,045 feet and Austin chalk from 3,700-45 feet, coring sand and ash from 3,751-62 feet with an elevation of 435 feet. Pipe will be set and the well tested as soon as plug is drilled. The D'Armand dry hole had some sand at 3,777 feet with surface elevation at 3,352 feet. The Hamilton test has a subsea datum of 3,327 feet on the sand while the other hole had subsea datum of 3,352 feet. Even though the test makes a producer it will necessarily be an edge well, and perhaps only a small producer.

During the first 15 days of July 1,397,670 bbls. was run through pipe lines whereas production during the period was only 1,325,670 bbls., the allowable production being 1,072,000 bbls. Twenty-seven companies overproduced during that period, running 817,670 bbls. more than their allowances while other producing companies produced 492,000 bbls. short. The Arkansas Fuel Oil Co. ran over 110,200 bbls. by tank cars, and estimated 414,150 bbls. by pipe line, the company's allowable being 91,975 bbls.

Only 10 wells are now unconnected in the Lathrop area, Gregg County, according to Umpire Clark who says these wells can obtain connections if desired.

Another interesting test in northeast Upshur County is Becker and others' No. 1 Barrett in the Witchie Survey, northwest of the Mamie Hammond dry hole. It cored saturated sand from 3,608-15 feet and soft sand to 3,621 feet. Elevation of the test is 336 feet making a subsea datum of minus 3,272 feet on top of the sand. The well is now standing shut down with casing cemented, showing up as a producer and an extension well to this part of the Lathrop Pool.

Unitization Plans Considered

Some of the major companies are now working on plans to unitize certain areas in the East Texas district where such companies own adjacent acreage which may easily be assimilated in such a plan which could be used to relieve present conditions in the flush territory where other plans for conservation, curtailing drilling operation and activities have failed. A series of conferences was held in Dallas during the week at which plans were discussed.

Two companies, Stanolind Oil & Gas Co. and Continental Oil Co., holding offset acreage in the Marshall Mann Survey, northern Gregg and southeastern Upshur Counties, are negotiating for the joint production of some 500 acres, thereby cutting down the cost of production of the two large leases, bringing about greater material returns to both companies. Other companies holding like acreage, adjacent to each other may be expected to follow soon with such plans. Such unitization would also be of great assistance in controlling salt water encroachment, and the disposal of such water when it assumes proportions which otherwise would tax each company heavily in disposing of its individual water production.

Engineers are continuing to study the salt water situation in the district. Two plans under consideration are, natural drainage with limited storage, and piping the water to the coast.

It is reported that Cranfill & Germany, of Dallas, have transferred all their holdings in the district to the Independent Pipe Line Co. for $3,000,000 in stock. Cranfill & Germany are owners of the Pilot Oil Co., associated with the Independent Pipe Line Co.

Pure Oil Co. abandoned its No. 2 Swain in the John Walling Survey, Van Pool, Van Zandt County, at a total depth of 2,981 feet. The test is located in the northeastern part of the unitized block.

The Pure-Van Pipe Line Co. posted new prices for the Van Pool at 7 a.m., July 25. Crude below 36 degrees gravity will bring 35 cents; crude 36 degrees gravity and above will bring 40 cents.

SHIPMENTS THROUGH TRUNK LINES

Company, location—	Dly. av.
Arkansas Fuel Oil Co., Shreveport	27,500
Gulf Pipe Line Co., Port Arthur	32,342
Atlas Pipe Line Co., Shreveport	28,073
Humble Pipe Line Co., Shreveport	41,533
Humble Pipe Line Co., Jacksonville	36,108
Magnolia Pipe Line Co., Center	20,764
Sinclair Pipe Line Co., Teague Sta.	12,745
Texas Pipe Line Co., Douglas Sta.	53,035
Tidal Pipe Line Co., Magnolia main line	11,755
Liberty Pipe Line Co., Pure-Van P. L. Co.	7,430
Total	271,285

SHIPMENTS TO EAST TEXAS REFINERIES

Boone Ref. Co., Arp	350
Butler-Calhoun, Overton	3,150
C. & P. P. L. Co., Henderson (Beacon Ref.)	3,836
East Texas Ref. Co., Longview	11,116
Slack Ref. Co., Camp Switch	1,496
Taylor Ref. Co., Tyler	10,115
Arrow Ref. Co., Overton	735
Total	30,848

SHIPMENTS BY TANK CAR

Arkansas Fuel Oil Co.	43,400
Butler and Calhoun	17,843
Central Pipe Line Co.	21,008
Cherokee Chief Oil Co.	10,578
Crown Pipe Line Co.	20,600
East Texas Ref. Co.	5,963
F. & M. Transport Co.	7,357
Nat Hunter Oil Co.	56,802
Humble Oil & Ref. Co.	54,227
Illinois Pipe Line Co.	14,056
Inland Waterways	2,190
Marine Oil Co.	6,875
Macmillan Pet. Co.	37,599
Oriental Ref. Co.	2,456
Petroleum Marketing Co.	56,529
Pilot Oil Co.	14,246
Pilot Oil Co.	23,075
Republic Prod. Co.	599
Sabine Pipe Line Co.	17,678
Shell Pet. Corp.	150,062
Simms Oil Co.	86,874
Sinclair-Texas	93,624
Texas Pacific Coal & Oil Co.	3,849
Tyler Pipe Line Co.	33,803
Total	791,292
Total distribution	1,093,425

COMPLETIONS IN EAST CENTRAL TEXAS

Week Ending July 25, 1931

Gregg County

Arkansas Fuel Oil Co.'s No. 1 P. D. Harrison location abandoned.

Jim Cloud, Jr.'s No. 1 B. C. Christian, top sand 3,628 feet, initial production 52 bbls. in 15 minutes, total depth 3,658 feet.

Cranfill and Reynolds' No. 1 Rembert, top sand 3,491 feet, initial production 93 bbls. in 20 minutes, total depth 3,505 feet.

Gladewater Oil Co.'s No. 1 D. Johnson, top sand 3,598 feet, initial production 65 bbls. per hour through three-quarter inch tubing choke, total depth 3,613 feet.

Gulf Production Co.'s No. 2 Bozeman, top sand 3,605 feet, initial production 60 bbls. per hour through eleven-sixteenths inch choke, total depth 3,623 feet.

Humble Oil & Refining Co.'s No. 2 Holland, top sand 3,549 feet, initial production 345 bbls. in three hours on three-quarter inch tubing choke, total depth 3,571 feet.

Leonard Petroleum Co.'s No. 1 Rose Corbin, top sand 3,551 feet, initial production 113 bbls. in one hour through eleven-sixteenths inch tubing choke, total depth 3,594 feet.

Lion Oil & Refining Co.'s No. 1 J. R. Williams, top sand 3,410 feet, initial production 225 bbls. per hour through open tubing, total depth 3,538 feet.

Magnolia Petroleum Co.'s No. 1 C. Davis, top sand 3,569 feet, initial production 1,122 bbls. per hour through tubing and casing, total depth 3,585 feet. Magnolia Petroleum Co.'s No. 1 Salters, top sand 3,604 feet, initial production 452 bbls. per hour, total depth 3,620 feet.

Mook Texas Oil Co.'s No. 1 Dolly Rodden, top sand 3,640 feet, initial production 611 bbls. per hour open, total depth 3,680 feet.

George Pace's No. 1 W. D. Anderson, top sand 3,597 feet, initial production 105 bbls. per hour through three-quarter inch tubing choke, total depth 3,623 feet.

Prairie Oil & Gas So.'s No. 2 I. Isley, top sand 3,520 feet, initial production 281 bbls. per hour through open tubing and casing, total depth 3,553 feet.

Roeser & Pendleton's and Wadley's No. 1-A Satterwhite, top sand 3,697 feet, initial production 104 bbls. in 30 minutes open tubing, total depth 3,711 feet.

Their No. 1-B Satterwhite, top sand 3,673 feet, initial production 210 bbls. per hour through open tubing, total depth 3,726 feet.

Stanolind-Simms Oil Co.'s No. 3 L. E. Peterson, top sand 3,469 feet, base 3,506 feet, top Georgetown lime 3,565 feet, initial production 126 bbls. per hour through three-quarter inch choke, total depth 3,567 feet.

Sun Oil Co.'s No. 1 J. W. Aiken, top Austin chalk 3,517 feet, top sand 3,567 feet, initial production 250 bbls. per hour through tubing, total depth 3,628 feet.

Superior Oil Co.'s No. 1 L. C. Ingram, top sand 3,510 feet, initial production 96 bbls. per hour through thirty-seven sixty-fourths inch tubing choke, total depth 3,590 feet.

W. F. Turner's No. 3 A. Jones, top sand 3,621 feet, initial production 105 bbls. per hour through three-inch tubing choke, total depth 3,665 feet.

Vacuum Oil Co.'s No. 1 R. B. White, broken sand 3,497-3,550 feet, initial production 105 bbls. per hour three three-quarter inch choke on tubing, total depth 3,554 feet.

Yount Lee Oil Co.'s No. 1 M. Jones, top sand 3,504 feet, initial production 99 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,524 feet.

Atlantic Oil Production Co.'s No. 2 S. G. Andrews—top sand 3,652 feet, initial production 120 bbls. per hour through three-quarter inch tubing choke, total depth 3,652 feet.

Barnsdall Oil Co.'s No. 1 Ladd Smith, abandoned location.

Glasscock and others' No. 1 Kilgore County School Land, top sand 3,595 feet, initial production 200 bbls. per hour through open tubing, total depth 3,595 feet.

Gulf Production Co.'s No. 1 Willie Holt, top sand 3,607 feet, initial production 95 bbls. per hour through three-quarter inch tubing choke, total depth 3,617 feet. Its No. 4 Spear, top sand 3,538 feet, initial production 107 bbls. per hour through three-quarter inch tubing choke, total depth 3,553 feet; No. 5 Spear, top sand 3,530 feet, initial production 120 bbls. per hour through three-quarter inch tubing choke, total depth 3,550 feet; No. 6 Spear, top sand 3,612 feet, initial production 110 bbls. per hour through three-quarter inch tubing choke, total depth 3,622 feet.

Humble Oil & Refining Co.'s No. 6-B Laird, top sand 3,570 feet, initial production 71 bbls. first hour through three-quarter inch tubing choke, total depth 3,637 feet; No. 7-B Laird, top sand 3,606 feet, initial production 58 bbls. first hour, total depth 3,622 feet.

Magnolia Petroleum Co.'s No. 2 Blackman, top sand 3,625 feet, initial production 110 bbls. first 15 minutes through 4-inch line on casing and 4 and 1-inch chokes, total depth 3,627 feet; No. 3 Griffin Davis, top sand 3,632 feet, initial production 130 bbls. first 15 minutes through 4-inch line on casing, total depth 3,644 feet.

Mason and others' No. 1 J. R. Beall, top sand 3,699 feet, initial production 125 bbls. per hour through open tubing, total depth 3,700½ feet.

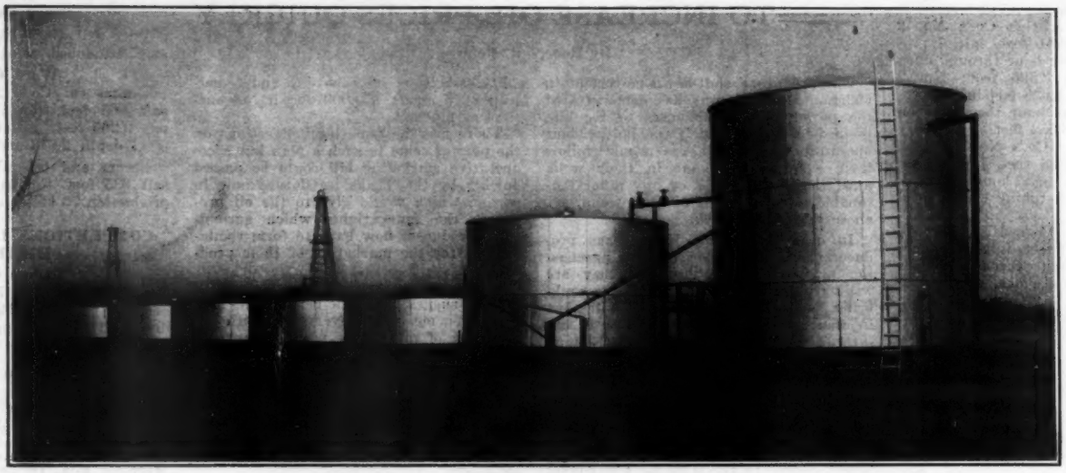
Merren and May's No. 1 Sarah Dansby,

OIL FIRE RESISTS CARBON DIOXIDE

Vitek Oil Co.'s No. 5 Eaton well in the Joiner area as it appeared just prior to the attempt to smother it with carbon dioxide gas.

TYLER, Tex., July 25.—An unsuccessful attempt was made this morning to smother the fire at the Vitek Oil Co.'s No. 5 Eaton near the town of London in the Joiner area by the use of a charge of carbon dioxide gas. It is now planned to drive a tunnel to the casing and kill the well by pumping in water and mud fluid as was done in bringing the Bell and Grady well under control.

The use of carbon dioxide gas for the purpose of smothering oil well fires had never been attempted before and while the results were not satisfactory it does not by any means condemn the idea. Limited time in which to rig up suitable equipment with which to direct the discharge of the gas into the flames was a contributing factor in the failure of the attempt. With opportunity to build suitable rack for carrying the discharge nozzles up to the flames and with the experience gained at this fire it is thought that carbon dioxide may be used effectively on future fires.



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top sand 3,701 feet, initial production 150 bbls. per hour through three-quarter inch tubing choke, total depth 3,712 feet.

Mid-Kansas Oil & Gas Co.'s No. 2 Bivens, top sand 3,591 feet, initial production 180 bbls. first hour through open tubing, total depth 3,596 feet; No. 2 Blackman, top sand 3,638 feet initial production 172 bbls. per hour through open tubing, total depth 3,654 feet.

Prairie Oil & Gas Co.'s No. 1 W. B. Walker, top sand 368 feet, initial production 195 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,695 feet.

Selby Oil & Gas Co.'s No. 1 M. T. Cole, top sand 3,530 feet, initial production 96 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,567 feet.

Shell Petroleum Corp.'s No. 1 P. M. Bates, top sand 3,570 feet, initial production 214 bbls. per hour through open tubing, total depth 3,618 feet; No. 4 J. B. Watson, top sand 3,580 feet, initial production 200 bbls. per hour through open tubing, total depth 3,651 feet; No. 9 Watson, top sand 3,537 feet, initial production 200 bbls. per hour through open tubing, total depth 3,615 feet; No. 10 Watson, top sand 3,549 feet, initial production 180 bbls. in 10 hours through twelve sixty-fourths inch tubing choke, total depth 3,573 feet.

The Texas Company's No. 1 Dickenson, top sand 3,533 feet, base 3,571 feet, initial production 210 bbls. per hour through 1½-inch choke, total depth 3,573 feet.

Texas Unity's No. 2 I.&G.N.R.R., location abandoned.

Trapshooter Riley's No. 1 A. Mitchell, location abandoned,

Whittle and Kavanaugh's No. 2 Smith, top sand 3,563 feet, initial production 95 bbls. per hour through three-quarters-inch tubing choke, total depth 3,590 feet.

Rusk County

Empire Gas & Fuel Co.'s No. 2 H. P. Leverett, top sand 3,712 feet, initial production 116 bbls. per hour through three-quarters-inch tubing choke, total depth 3,739 feet.

Gulf Production Co.'s No. 1 J. H. Palmer, top sand 3,593 feet, initial production 83 bbls. per hour through three-quarters-inch tubing choke, total depth 3,697 feet.

Humble Oil & Refining Co.'s No. 1 L. D. Crim, top sand 3,626 feet, initial production 85 bbls. per hour on 1-inch tubing choke, total depth 3,654 feet.

Karona Oil Co.'s No. 4 J. M. Peterson, location abandoned.

Navarro Oil Co.'s No. 1 Hindman, top sand 3,605 feet, initial production 203 bbls. per hour through tubing, total depth 3,640 feet.

Shell Petroleum Corp.'s No. 1 Gill, abandoned location; No. 1 J. B. Watson, top sand 3,584 feet, initial production 200 bbls. per hour through open tubing, total depth 3,629 feet; No. 1 T. Wells, top sand 3,655 feet, initial production 70 bbls. per hour through three-quarters-inch tubing choke, total depth 3,740 feet.

Doctor Thompson's No. 1 J. Dickson, top sand 3,608 feet, initial production 140 bbls. first hour through tubing, total depth 3,681 feet.

L. A. Warren's No. 2 Brock Estate, top sand 3,621 feet, initial production 125 bbls. first 15 minutes through one three-quarters-inch tubing choke and 2½-inch casing line, total depth 3,633 feet.

Bellinger's No. 1 P. C. Warren, top sand 3,755 feet, initial production 180 bbls. in 12 minutes through open casing, total depth 3,775 feet.

Blackwell Oil & Gas Co.'s No. 2 Stone, top sand 3,664 feet, initial production 165 bbls. per hour through open tubing, total depth 3,690 feet.

Bussa and others' No. 1 W. P. Brett, top sand 3,860 feet, initial production 63 bbls. in 30 minutes through open tubing, total depth 3,910 feet.

R. I. Carter's No. 1 Maxwell, top sand 3,664 feet, initial production 425 bbls. per hour through open casing, total depth 3,740 feet.

Gulf Production Co.'s No. 4 Grissom, top Austin chalk 3,526 feet, top sand 3,680 feet, initial production 125 bbls. per hour through open tubing, total depth 3,390 feet; No. 1 W. L. Murphy, top sand 3,754 feet, initial production 150 bbls. per hour through open tubing, total depth 3,763 feet; No. 5 E. E. Thrash, top sand 3,756 feet, initial production 90 bbls. per hour through open tubing, total depth 3,776 feet.

Humble Oil & Refining Co.'s No. 1 Blackwell, top sand 3,691 feet, initial production 83 bbls. per hour through three-quarters-inch tubing choke, total depth 3,696 feet; No. 1 Glover, top sand 3,728 feet, initial production 103 bbls. per hour through three-quarters-inch tubing choke, total depth 3,796 feet; No. 2 Glover, top sand 3,724 feet, initial production 107 bbls. per hour through three-quarters-inch choke, total depth 3,790 feet; No. 5 Plowman, top sand 3,685 feet, initial production 75 bbls. per hour through three-quarters-inch tubing choke, total depth 3,725 feet; No. 1 E. S. Thrash, top sand 3,780 feet, initial production 40 bbls. per hour through three-quarters-inch tubing choke, total depth 3,800 feet; No. 1 J. W. Turner, top sand 3,730 feet, initial production 118 bbls. per hour through three-quarters-inch tubing choke, total depth 3,772 feet; No. 3 Wheelis, top sand 3,705 feet, initial production 83 bbls. per hour through three-quarters-inch tubing choke, total depth 3,710 feet; No. 3 J. H. Wooley, top sand 3,663 feet, initial production 85 bbls. per hour through three-quarters-inch choke, total depth 3,683 feet.

H. L. Hunt's No. 3 J. R. Thrash, top sand 3,773 feet, initial production 160 bbls. per hour on open casing, total depth 3,783 feet.

Imperator Oil Co.'s No. 1 Cox, top sand 3,668 feet, crooked hole and location abandoned, total depth 3,813 feet.

Leonard Petroleum Co.'s No. 1 Cox, top sand 3,608 feet, initial production 58 bbls. per hour through open tubing, total depth 3,682 feet.

McMillan Petroleum Co.'s No. 1 Sapp Stone, top sand 3,665 feet, initial production 740 bbls. per hour through open casing, total depth 3,705 feet.

Magnolia Petroleum Co.'s No. 2 Eaton, top sand 3,742 feet, initial production 154 bbls. in 15 minutes through open casing, total depth 3,757 feet; No. 5 W. P. Moore, top sand 3,693 feet, initial production 1,020 bbls. per hour through open casing and tubing, total depth 3,700 feet.

Southern Oil Co.'s No. 2 Giles, top sand 3,677 feet, initial production 75 bbls. per hour through open tubing, total depth 3,706 feet.

Stanolind Oil & Gas Co.'s No. 1 D. W. O. Quinn, top sand 3,759 feet, initial production 163 bbls. per hour through open tubing, total depth 3,779 feet.

Ward Oil Co.'s No. 2 Thrash, top sand 3,765 feet, initial production 165 bbls. per hour through open tubing, total depth 3,802 feet.

Smith County

Adams and others' No. 2 T. O. Wright, location abandoned.

H. L. Hunt's No. 4-A R. W. Fair, top sand 3,680 feet, initial production 190 bbls. per hour through open tubing, total depth 3,711 feet.

Imperator Oil Co.'s No. 1 I. Grun, dry and abandoned.

Magnolia Petroleum Co.'s No. 2 Losier, top sand 3,658 feet, initial production 420 bbls. per hour through open tubing and casing, total depth 3,666 feet.

Magnolia Petroleum Co.'s No. 4 Loosier, top sand 3,664 feet, initial production 154 bbls. in 15 minutes through open tubing and casing, total depth 3,668 feet.

Sinclair Oil & Gas Co.'s No. 3-B Jarvis, top sand 3,674 feet, initial production 1,400 bbls. in eight hours through 2½-inch tubing, total depth 3,678 feet.

Sun Oil Co.'s No. 1 R. L. Henson, top sand 3,712 feet, initial production 25 bbls. in two hours by heads, total depth 3,716 feet: No. 1 A. Lane, top sand 3,652 feet, initial production 204 bbls. per hour through open tubing, total depth 3,657 feet.

Titus County

J. P. Flanagan's No. 1 Jim McGill, top sand 3,540 feet, dry and abandoned, total depth 3,887 feet.

Upshur County

Magnolia Petroleum Co.'s No. 1 J. W. Free, oil sand 3,645 feet; initial production 535 bbls. per hour through open tubing and casing, total depth 3,659 feet.

Van Zandt County

Pure Oil Co.'s No. 2 W. P. Swain, total depth 2,981 feet, plugged and abandoned; No. 8 F. B. Smith, initial production on eleven-sixteenths-inch choke 120 bbls., total depth 2,940 feet.

PENN SAYS PRODUCERS HAVE POWER TO INCREASE OIL PRICES QUICKLY

By Robert R. Penn

The producers' shut-down movement in Oklahoma and Kansas has demonstrated the power of the producers to regulate their own affairs and if the independent operators of East Texas would follow their example and shut in their wells until they received $1 or any other reasonable price for their oil they would get an increase in a week.

In other words the East Texas producers should serve notice to the purchasing pipe line companies that they are willing to produce only such oil as could bring a satisfactory price and will shut in their wells unless that price is obtained. It would then be up to the purchasers to say how much oil they would buy at that price and the producers could open up their wells ratably to such an extent as would yield that amount of oil.

This is another form of proration but it would be one where the producers would dictate rather than the purchasing companies, thereby overcoming the objection of some antiprorationists to other forms of restricted production.

If this is done I have no doubt personally that East Texas could market at least 250,000 bbls. of oil daily and that amount of oil sold at $1 per barrel would give them an income of $250,000 per day, whereas at present East Texas produces 400,000 bbls. of oil each day and is getting only about $50,000 for it, or one-fifth as much.

There may be some legal objections on the part of some to such a plan but a co-operative marketing bill could be passed quickly by the Texas legislature now in session which would give to the oil producers the same rights which agricultural producers now have to form combinations for the marketing of their products.

I do not wish to claim any originality for this suggestion. The germ of the idea was given me in a conversation with the president of one of the major companies which has not been in the past a very ardent supporter of proration or legally regulated production. He made the statement that the producers could dictate the price structure and, as he is a close student of marketing conditions, the question occurred to me as to how this could be effected.

As to the attitude of the purchasers, I am told that last week one or more of the pipe lines laid north to Oklahoma ran practically dry. It is only necessary for the oil producers to make a resolution to hold production below the demands of the purchasers and if they will adhere to that resolution the price structure will adjust itself quickly.

WASTE DISPOSAL

Announcement has been made of the appointment of two new members to the Committee on Disposal of Production Wastes of the American Petroleum Institute's Division of Production. They are D. B. Dow, Indian Territory Illuminating Oil Co., Bartlesville, Okla,, and R. D. Risser, field construction engineer, Shell Petroleum Corp., Tulsa.

MR. JENNINGS VICE PRESIDENT

O. A. Jennings has been elected vice president and commercial manager of Oklahoma Gas & Electric Co., a subsidiary of Standard Gas & Electric Co.

NORTH AND WEST TEXAS

(Continued from Page 34)

Pure Oil Co.'s No. 1 Harrison, dry and abandoned, total depth 5,000 feet.

Ward County

Simms Oil Co.'s No. 1 Himmel, top salt 965 feet, top lime 2,125 feet, top pay 2,265 feet, initial production 8 bbls., total depth 2,612 feet.

Sturm and others' No. 1 Jones, top salt 835 feet, top pay 2,466 feet, initial production 75 bbls., total depth 2,473 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Interstate Production Co.'s No. 1 Seiber, top pay 2,700-2,910 feet, initial production 11,000,000 feet of gas, total depth 3,000 feet.

SHIPMENTS THROUGH TRUNK LINES

Company, size and location—	
Atlantic, 10-in., Houston	14,389
Gulf, 10-in., Ranger	None
Humble, 2-8-in., San Angelo	38,996
Humble, 10-12-in., Comyn	48,206
Illinois, 2-8-in., Del Rio	32,861
Magnolia, 8-in., De Leon	12,897
Pasotex, 8-in., El Paso	8,819
Shell, 10-in., Healdton	29,455
Shell, 10-in., Houston	None
Texas, 12-in., Houston	24,563
Total	210,186

SHIPMENTS TO WEST TEXAS REFINERIES

Big Spring Refining Co., Big Spring	1,047
Burford Refining Co., Pecos	1,387
Cosden Refining Co., Big Spring	7,654
Coltex Refining Co., Colorado	7,954
Great Western Refining Co., Pyote	2,061
Tonkawa Refining Co., Pyote	1,343
Wickett Refining Co., Wickett	800
Total	22,226

SHIPMENTS BY TANK CAR

Shell, from McCamey	400
Big Lake, from Texon	5,000
Thomas Brann, from Grant City	74
Total	5,474
Total daily average production	239,658
Total daily average distribution	237,886
Daily average to storage	1,772

NORTH TEXAS PRODUCTION

Week ending July 25

Panhandle District—	Bbls.
Carson County	5,115
Gray County	39,422
Hutchinson County	9,785
Moore County	1,057
Potter County	....
Wheeler County	363
Total production this week	55,742
Total production last week	57,721
Decrease	1,979
Wichita Falls District—	
Archer County	12,218
Baylor County	426
Clay County	569
Cooke County	1,205
Foard County	70
Haskell County	26
Jack County	2,155
Montague County	2,955
Throckmorton County	429
Wilbarger County	12,546
Wichita County	18,123
Young County	11,359
Total production this week	62,081
Total production last week	65,412
Decrease	3,331
Ranger District—	
Brown County	2,298
Callahan County	1,857
Coleman County	2,107
Comanche County	824
Palo Pinto County	357
Eastland County	2,952
Shackelford County	2,110
Stephens County	4,295
Total production this week	16,800
Total production last week	19,012
Decrease	2,212

CHARLES H. HOMER DEAD

HOUSTON, Tex., July 27.—Charles H. Homer, 46, superintendent of production for the Mills Bennett Production Co., died in his home here following a brief illness. Mr. Homer was widely known among operators on the Gulf Coast. Previously to his connection with Mills Bennett, two years ago, he was superintendent of the Rio Bravo Oil Co., Houston, and had been active in the oil business many years before that. He leaves his widow, a daughter, three sons, his mother and a brother.

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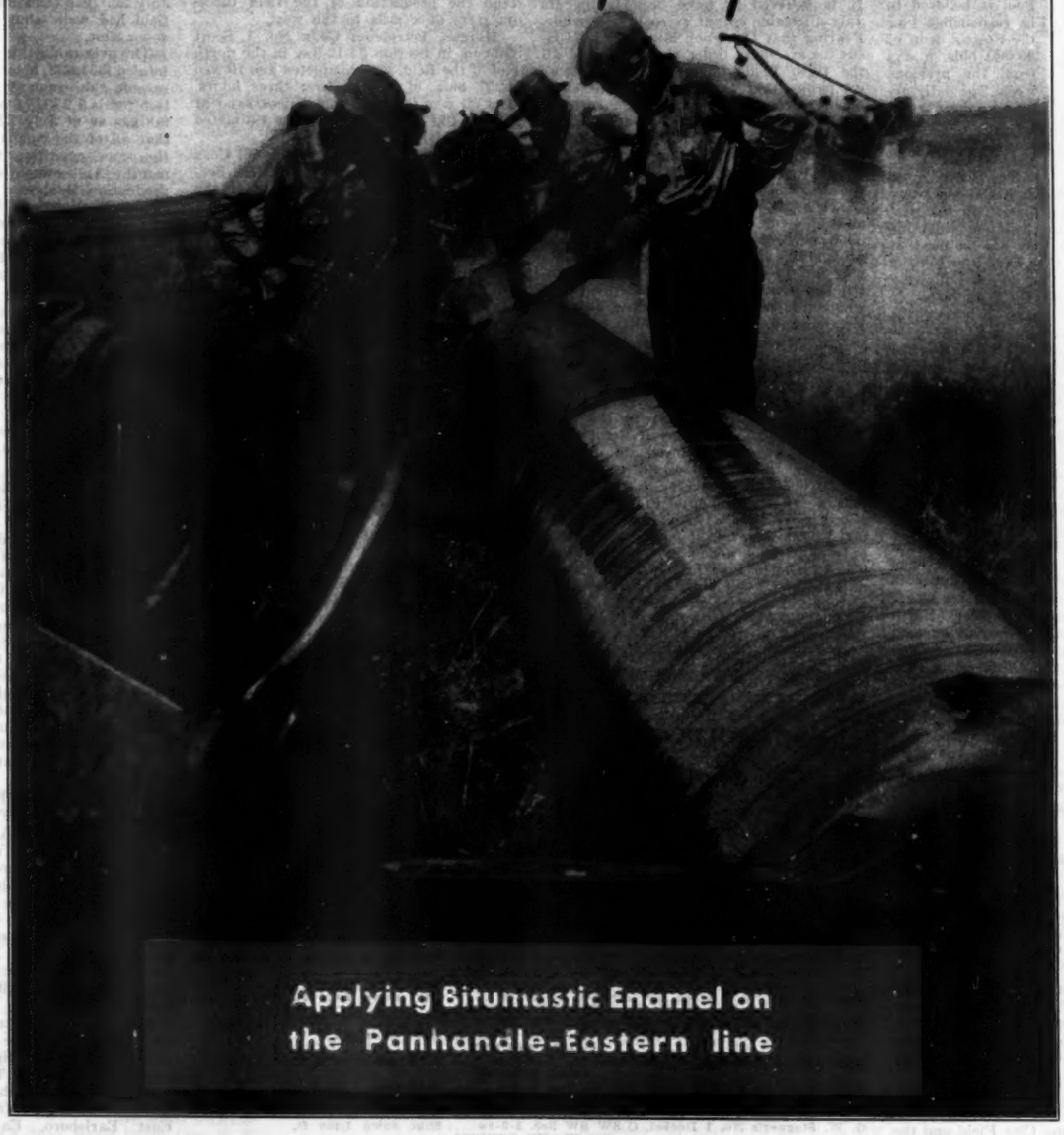

Applying Bitumastic Enamel on the Panhandle-Eastern line

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Oklahoma Producers Hold Their Oil

Production Dropped to 481,600 Bbls. a Day, Lowest Figure in Years, as Protest Against Low Prices

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

The daily crude oil production from Oklahoma showed another substantial decline for the week ending July 25. The co-operation of producers in the Oklahoma City Pool is believed to be responsible for the State's drop of 39,000 bbls. a day from the previous week. The daily average production for the seven days was approximately 481,600 bbls.

The crude oil purchasing companies in Oklahoma were facing a perplexing situation in the past week. According to their nominations made a month ago they are in need of more crude oil than they have been getting from the Oklahoma City Field. Following the Continental Oil Co.'s increase in crude prices to 40 cents a barrel, the Magnolia Petroleum Co. met the price, posting a flat price of 40 cents, for Oklahoma City, Morrison, Yale, Cushing, Wewoka and Greater Seminole area. Then the companies which had been paying from 10 to 22 cents per barrel increased their prices 20 cents per barrel on each grade.

During the week several companies with production in the Oklahoma City Field joined the shutdown movement in that field. The Indian Territory Illuminating Oil Co. announced it would shut down except where offset wells are open and producing. The shutdown applies to certain wells on partnership leases where the consent of partners has been or will be obtained. The company gave its consent to partnerships who are operating leases in which it has an interest to shut down. The order is effective until further notice. The company has a total of 308 wells in the Oklahoma City Field and 16 of these wells have been plugged back to the gas horizons at shallow depths. Two hundred of these wells have an allowable of 350,000 bbls. of oil during the balance of the month of July, and 42 of the total wells will be opened intermittently during the rest of the month. These 42 wells have an allowable of 12,000 bbls. a day.

Other companies joining the shutdown movement during the week were the British-American Oil Co., Empire Oil & Refining Co., Sunray Oil Co., Westgate Oil Co. and Wrightsmith Oil Co.

Companies with large production in the Oklahoma City Field that have not joined the shutdown plan include, Sinclair Oil & Gas Co., Champlin Refining Co., Wilcox Oil & Gas Co. and Century Petroleum Corp.

The following is a list of companies which have joined the shutdown movement in the Oklahoma City Field and the number of wells owned by each and the total daily rated potential as of July 1:

Company—	Wells	Rated potential (bbls.)
Acme O. & G. Co.	1	42,686
Anderson-Prichard	26	383,941
Blackwell O. & G. Co.	3	53,134
H. Blackstock	1	4,372
Coline Oil Co.	34	72,334
Dengall Oil Co.	4	80,539
Denver P. & R. Co.	5	96,783
Donleon Oil Co.	2	54,236
Hall & Briscoe	3	16,000
Jones Bros.	3	49,230
John Mabee	4	167,361
Phillips Pet. Co.	46	1,493,917
Reynolds & Unruh	1	24,321
J. C. Shaffer	5	83,204
Skelly Oil Co.	30	389,338
Tom Slick Oil Co.	87	1,005,702
Total	533	5,400,328

Eighty-three of the above wells have not been gauged for a potential as of July 1, so the potential flow represents only 450 wells.

The Sinclair Oil & Gas Co. has been producing its wells in the Oklahoma City Field wide open during the last week. It is believed to have been taking its July allowable output as soon as possible. Fearing that Governor Murray would issue an executive order shutting down all the flush fields in the State all those companies that are opposed to the shutdown movement were making efforts to produce their allowable production for the month of July ahead of the executive order.

One day last week the Sinclair Oil & Gas Co. had a production of 57,156 bbls. in 24 hours. The company finished its allowable for the month of July on July 25 when it shut down. Some believe the production of the Oklahoma City Field will fall to about 75,000 bbls. a day in the last few days of the month. Other companies have completed their July allowable and are shutting down.

Decrease in Shipments

The pipe line shipments from the Oklahoma City Field show a decrease as many of the major purchasers were shut off without any crude oil. During the week ending July 25, the Sinclair-Texas Pipe Line Co. which announced its nominations for the month would be around 45,000 bbls. a day averaged only 15,000 bbls. a day, the Stanolind Pipe Line Co.'s nominations were between 45,000 and 50,000 bbls. a day, and it has been shipping only 8,000 bbls. a day in the past week. The Oklahoma Pipe Line Co. with nominations of 22,000 bbls. a day has been shipping an average of 2,700 bbls. a day. The shipments of the other purchasers in the Oklahoma City Field have declined.

One of the interesting wells in the Oklahoma City Field is nearing completion. The test is Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 1 Egermier, SW cor., Section 23-11-3w, on the west side of the field, in which the crew was landing the 6-inch casing in the Wilcox sand found at 6,433-45 feet. It is expected to make a well and it may extend the production of the field three-quarters of a mile to the west.

Morgan Petroleum Co.'s No. 1 Scott Gibbon, in Section 34-12-3w, in the north end of the field, was completed and flowed 4,257 bbls. of oil the first three hours. The oil was found in the Wilcox sand at 6,240-6,460 feet. The gas was estimated at 30,000,000 feet a day.

Indian Territory Illuminating Oil Co.'s No. 4 Lawrence Place, SW cor. NE, Section 15-11-3w, on the west side of the Oklahoma City Field, was completed and flowed 5,998 bbls. the first four hours and was shut in. The Wilcox sand was found from 6,370-6,499 feet. The gas was estimated at 35,000,000 feet a day.

Scattered Curtailment

It was estimated that during the week ending July 25, approximately 8,000 bbls. of oil was withdrawn from the market by producers outside of the Oklahoma City area. The production is in scattered parts of the State, including the Greater Seminole area and in Osage County. A survey of the oil-producing companies indicates that instead of shutting down the wells the majority of the companies are pumping their wells once every two to five days.

The Oklahoma City Field had produced but little more than half of its total allowable for the month of July, when the operators began shutting in their wells in the field. The total oil scheduled to be produced and shipped from the field during month of July was 8,008,548 bbls., according to Field Umpire Otto Bradford. On July 22 there remained 3,138,137 bbls. of this quantity yet to be produced. It was estimated that the field would end the month of July with about 2,500,000 bbls. of underproduction.

There are 58 different producing companies in the Oklahoma City Field and 32 of these were underproduced and 14 were overproduced on their totals, as of July 22. The remaining companies in the field had wells shut down serving shutdown time.

The overproduction of the 14 companies totaled 334,622 bbls. and was based on ratable takings only. The underproduction totals 1,256,571 bbls. of oil in ratable takings as of July 22, and it is believed that all of the companies will remain in the same condition the balance of the month. An example of the ratable overproduction is shown in the Indian Territory Illuminating Oil Co.'s situation. It had a ratable overproduction of 89,882 bbls. as of July 22, and at the same time it had due 543,717 bbls. of oil for the remainder of the month.

Champlin Refining Co., which is operating under a federal restraining order against the Oklahoma Corporation Commission, is overproduced for the month. It was ratably overproduced 181,640 bbls. of oil on July 22, according to the field umpire. The total allowable for the month of July was 35,392 bbls. The company also started the month with production of 212,950 bbls. more than its allowable.

According to the field umpire's report the Oklahoma City Field had a potential of 8,296,200 bbls. of oil as of July 22. Five companies added an initial production of 33,187 bbls. of oil between July 1 and 22. The current allowable for the month of July was 6,689,478 bbls., but the amount the field was allowed because of the underproduction during the same period was 8,008,548 bbls., making the daily average for the month 258,666 bbls.

Umpire Bradford explained that companies joining the shutdown movement will not lose the amount of oil allowed for their shutdown time, but the production will be accumulated and carried forward until the shutdown period terminates.

In the Seminole Area

In the Seminole Field some estimate that approximately 5,000 bbls. of crude oil has been either shut in or disconnected from the purchasing companies. Some of the companies are running the daily production to storage until the crude oil prices are increased. In the Konawa Field it is estimated that storage in the Konawa Field has been reduced approximately 30,000 bbls. and companies are still withdrawing crude oil from storage.

Ray M. Collins, state umpire, advises oil operators in the Greater Seminole area to use the decline curve in taking August potentials. The potentials for leases in the Allen (shallow and Wilcox), Bowlegs, Carr City (settled production), East Earlsboro, Earlsboro, Earlsboro townsite, Little River, East Little River, Maud, Mission, Sasakwa, Searight, Seminole, East Seminole and St. Louis Pools will be determined by deducting 3 per cent from the July potentials.

August potentials for leases in West Asher-Wanette and Konawa Pools will be determined by deducting 5 per cent from the July potentials.

The same potentials will be allowed for the month of August for leases in the West Chandler and West Seminole Pools that were in force during the month of July.

Class "A" wells in the South Earlsboro Pool will be allowed to flow to full capacity August 1, and Class "B" wells August 2. The total production from the

(Continued on Page 136)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Shut down 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW Sec. 31-1-13	Rig.
Edgerton Edwards' No. 2 Rowland, SE NE NW Sec. 6-1-15	Rig.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-24w	T. D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cement to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-22w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 34-10-24w	Shut down 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Shut down 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	Shut down 1,115 ft.

COAL COUNTY

McCraw Oil Co.'s No. 1 Ward, NE SE Sec. 35-1-8	Shut down 1,730 ft.
Whitney et al's No. 1 Miller, SE NE Sec. 16-2-8	Shut down 760 ft.

COMANCHE COUNTY

G. W. Stegner's No. 1 Doebel, C SW SW Sec. 2-2-9w	Shut down 1,450 ft.

LE FLORE COUNTY

H. E. Dowd et al's No. 1 Unknown, SE NE Sec. 17-3-23	Drlg. 450 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-4w	Shut down 5,850 ft.

GARVIN COUNTY

Marlarnée et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w	Shut down 4,830 ft.
Skinner's No. 1 Elrod, SW cor. Sec. 12-2-3	Shut down 1,120 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor. Sec. 1-7-21w	5,000,000 ft. gas 1,455-65 ft.; T. D. 1,760 ft.
French's No. 1 Murphy, SW NW Sec. 23-7-21w	Shut down 1,645 ft.

HARPER COUNTY

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w	30,000,000 ft. gas 5,350-5,400 ft.; T. D. 6,539 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Sooner Oil & Gas Co.'s No. 1 Unknown, C NE SE Sec. 9-7-20	Rig.
Bowers Oil & Gas Co.'s No. 1 Black, Kent Townsite, SE SW SW Sec. 31-8-20	1,000,000 ft. gas 710-50 ft.; T. D 850 ft.
Ault et al's No. 1 Harrison, CWL SE NE Sec. 14-9-19	Shut down 650 ft.
Ault et al's No. 1 Hall, NW SW SW Sec. 14-9-19	Shut down 2,000 ft.

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One Good Completion in Zwolle Field

Coates' No. 1 Hale, Flowing 1,000 Bbls. Daily, Believed to Forecast Closing of Gap Between Zwolle and Blue Lake Fields

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., July 27.—Completion of a good well in the extreme western extension of the Zwolle Field of Sabine Parish was the only feature of the week in this division, only one other producer being reported and that from this same field. The new gusher is W. M. Coates' No. 1 Hale, Section 1-7-13, which flowed at the rate of 1,000 bbls. daily through a small choke. Production is coming from broken chalk formation at 2,386 feet. It is the third producer out of three tests for this extension, which is 1½ miles southwest of Zwolle Townsite production, and a direct west offset to Stovall Drilling Co.'s No. 1 Nulton in the same section, which had an initial flow of 1,000 bbls. daily. This new producing area is between the Zwolle Field proper and the Blue Lake Field, 9 miles southwest, the original discovery area of this section, and indicates that the gap between these two fields eventually may produce.

The other producer was Sabine Royalties Co.'s No. 1 Hill in Section 5-7-11, 8 miles east of the Coates well, with initial production of only 5 bbls. daily from 2,546 feet. The two other completions, out of a total of four, were dry holes. In Marion County, East Texas, Shelton and others abandoned their No. 1 J. M. McNeal, R. Fowler Survey, at 3,750 feet, and the other duster was in Rankin County, Mississippi, with the abandonment of Cleve Love and others' No. 1 Muse, Section 32-7-4, at 4,000 feet.

Wildcats Creating No Excitement

None of the wildcats in North Louisiana is creating excitement and one of them, the Flint River Oil Co.'s No. 1 DeMoss, in Section 22-22-13, Bossier Parish, tested dry at 3,046 feet after showing promises of better results. Only a small show of oil and gas was obtained when the well was bailed, no salt water appearing, and the hole probably will be deepened. In DeSoto Parish, S. S. Meek, trustee, spudded in on his No. 1 Wagner, Section 5-12-11, having set 10-inch surface casing at 110 feet and now is drilling at 1,604 feet. This test is about 1 mile south of Pelham & Bundy's No. 1 Rhodes in Section 32-13-14, which was completed on October 8, 1930, pumping 12 bbls. of oil and 15 bbls. of salt water daily. Oil from this well is being used for fuel on the new test. In the northwestern part of DeSoto Parish, E. T. Oakes is reaming to bottom at 2,011 feet on his No. 1 Bryant in Section 30-13-15. The Gulf Refining Co. is making good progress on its wildcat test in Winn Parish, No. 1-A Bodcaw Lumber Co., in Section 4-10-5, the drilling report listing them in hard chalk at 3,477 feet.

Several good gas wells should be completed the coming week, two of which will be from the Trinity horizon. In the Rhodessa Field of northwest Caddo Parish, United Gas Public Service Co. has set 7-inch casing in its No. 1 Smith, Section 33-23-16, at 5,399 feet with a total depth of 5,404 feet. Plug will be drilled and the hole deepened to around 5,530 feet where production is encountered in this field. The other Trinity gasser is expected from the Bethany Field of Panola County, East Texas, where the Arkansas-Louisiana Pipe Line Co. is bailing its No. 14 Werner, B. C. Jordan Survey, at 4,718 feet. If unsuccessful at this depth, the well will be deepened as the best gassers in this area have been completed 30 to 40 feet lower.

In Richland Parish, three wells are ready to drill plugs and test. The Hope Production Co. has set 6-inch casing in its No. 1 McCoy heirs, Section 29-16-6, at 2,280 feet, and the Southern Carbon Co. has set 6-inch at 2,285 feet in its Nos. 4 and 5 Rosengrant & Ducomb, the former in Section 19-17-6 and the latter in Section 24-17-5. T. P. Fields and the Ruston Drilling Co.'s No. 1 Summitt Land Co., Section 21-21-1w, Union Parish, topped the Nacatoch formation at 2,033 feet and are drilling at 2,094 feet.

More Activity in Jackson Field

The Jackson gas field in Hinds and Rankin Counties, Mississippi, is showing more activity, several wells having set casing above the pay horizon and now being ready to drill plug and test. Atkinson & Dyer set 6-inch in their No. 1 Downing, Section 27-6-1, at 2,540 feet and are drilling plug to test at 2,545 feet. The Hopkins Gas Co.'s No. 1 Ridgeway, Section 2-5-1e, has 6-inch set at 2,457 feet, and the Union Drilling Co. has 6-inch set at 2,379 feet in its No. 1 Pate Royalty Co., Section 12-5n-1e. The Community Gas Co. recently spudded in its No. 1 Swearingen, Section 34-6n-1e, Hinds County, and has set 15½-inch surface casing at 47 feet. The Gulf Refining Co.'s No. 1-A Hanna, Section 23-6n-1e, Rankin County, has 12½-inch casing set at 840 feet with a total depth of 1,436 feet. The Arkansas-Louisiana Pipe Line Co. is rigging up on its No. 1 Brandon-Hall farms, Section 61-18n-1w, in Adams County, and the Ohio Oil Co. has resumed drilling on its No. 1 Cantrell in Section 16-15-5, Clay County. This well is being drilled with cable tools and is a deep test with the present depth at 4,383 feet.

Other wildcats in Mississippi follow: Jasper County, Bay Springs Petroleum Co.'s No. 1 Keys, Section 21-2-10, drilling at 2,091 feet; Jefferson County, Stokes-Cleve Love's No. 1 Phillips, Section 14-10-2, drilling at 915 feet; Monroe County, McAlpine and others' No. 1 Cowart, Section 2-12-19, bailed dry with a show of salt water at 2,950 feet and operators are deepening the hole, total depth being 3,240 feet. Thompson & Donohue's No. 1 Donohue, Section 25-16n-17e, a wildcat in Noxubee County, is drilling at 1,214 feet. In Winston County, the Mississippi Drilling Co. is coring at 3,525 feet in its No. 1 Scarborough, Section 15-13-14, and in Yalobusha County the Collett-Carter Oil Co. has temporarily abandoned its No. 2 Blackmere, Section 14-11-4, at 3,478 feet.

Wild Gasser Uncontrolled

The wild gas well in northeastern Shelby County, East Texas, E. L. Chapman's No. 1 Pickering Lumber Co., C. E. Henry Survey, is not yet under control. The operators are trying to kill the well by digging a tunnel or cellar and put a blowout preventer on the 6-inch casing, this being the only reinforcement in the hole as the 12-inch surface casing collapsed shortly after the well blew in. To stop the flow through the 6-inch, the result would be that the gas would escape on the outside through the cavity left by the collapse of the surface casing, thus forming a crater.

Other drilling operations in Shelby County follow: K. H. Francis' No. 1

(Continued on Page 136)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location—	Remarks:
Arcadia Drlg. Co.'s No. 1 Atkins, 175 ft. W, 130 ft. N, SE cor. NW NE, Sec. 27-18-6	S.D. 1,165 ft; laying wtr. line.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 350 ft. W, C, Sec. 15-22-14	Flowing by heads 2 bbls. 2,890 ft.
Flint River Oil Co.'s No. 1 DeMoss, 200 ft. S and E, NW cor. SE NW, Sec. 22-22-13	Bailing to test 3,046 ft.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11	S.D. 1,402 ft.
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 12-15-11	Drlg. 775 ft.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-12	S.D. 1,600 ft.

CADDO PARISH

United Gas Public Service Co.'s No. 1 M. K. Smith, 660 ft. S, 2,640 ft. W, NE cor., Sec. 33-23-16	Set 7-in. 5,399 ft; T.D. 5,404 ft.
W. P. Wallace, tr.'s No. 2 Cunningham-O'Conner, 210 ft. S, 940 ft. E, NW cor., Sec. 15-17-14	Began July 18; set 10-in. 84 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4	Derrick.
Hudson et al's No. 1 Burton, Sec. 35-12-3e	S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMillen, 70 ft. N, 100 ft. W, C, Sec. 26-9-6	T.A. 2,097 ft.

DE SOTO PARISH

Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15	S.D. 2,350 ft.
S. S. Meek, tr.'s No. 1 Wagner, 300 ft. S and E, NW cor. SE NW, Sec. 5-12-14	Set 10-in. 101 ft; drlg. 1,604 ft.
Ben Merritt, tr.'s No. 1 Walluma, NE cor. SW SW, Sec. 29-12-13	Set 6-in. csg. 2,580 ft.; T.D. 2,657 ft.
H. T. Oakes' No. 1 R. H. Bryant et al, 300 ft. N and W, SE cor. NE NW, Sec. 30-13-15	Reaming to bottom 2,011 ft.
Rellitt Oil Co.'s No. 1 Gannon hrs., 300 ft. S and E, NW cor. NW NE, Sec. 13-11-16	S.D. 1,410 ft.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13	S.D. fuel 700 ft.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 25-9-10	T.A. 4,091 ft.
J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10	S.D. 3,156 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 33-11-10	S.D. 1,515 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 30-11-10	Tested dry; S.D. 1,380 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 200 ft. E, NW cor., Sec. 27-13-11	Spudded in; S.D. 50 ft.
Mack Jourden Co.'s No. 1 Lockett, 4,035 ft. S, 1,080 ft. E, NW cor. SW, Sec. 30, in Sec. 32-13-10	S.D. 2,500 ft.

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LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location—	Remarks:
J. T. McCormick's No. 1 C. B. Christian, 330 ft. S, 300 ft. W, NE cor. SW, Sec. 27-21-15	S.D. 1,335 ft.
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15	S.D. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15	Set 10-in. 150 ft; S.D.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4	Location.

OUACHITA PARISH

Ark.-La. P. L. Co.'s No. 7 McEnnery, 700 ft. N and W, SE cor. SE, Sec. 29-19-4e	Derrick.

RICHLAND PARISH

Hope Prod. Co.'s No. 1 McCoy hrs., 660 ft. W, 1,980 ft. S, NE cor. NW, Sec. 29-16-6	Set 6-in. 2,280 ft; W.O.C.
Southern Carbon Co.'s No. 4 Rosengraut & Ducomb, 1,320 ft. S, 660 ft. W, NE cor., Sec. 19-17-6	Set 6-in. 2,285 ft; W.O.C.
Southern Carbon Co.'s No. 5 Rosengraut & Ducomb, 3,300 ft. N, 2,089 ft. W, SE cor., Sec. 24-17-5e	Set 6-in. 2,285 ft; W.O.C.
Southern Carbon Co.'s No. 6 Rosengraut & Ducomb, 2,640 ft. E, 1,980 ft. N, SW cor., Sec. 19-17-6	Rigging up.
United Carbon Co.'s No. 1 Faust Lbr. Co., 1,320 ft. S, 1,980 ft. E, NW cor. SW, Sec. 13-17-5	Rigging up.
United Gas Public Service Co.'s No. 5 Marshfield, 660 ft. N and E, SW cor., Sec. 19-17-6e	Set 9-in. 916 ft; W.O.C.
United Gas Public Service Co.'s No. 1-A Wayne Land & Timber Co., 1,320 ft. S, 697 ft. E, NW cor., Sec. 24-17-5e	Began July 15; set 12½-in. 153 ft; 9-in. 906 ft.

SABINE PARISH—ZWOLLE

Roy Baker's No. 1 Sabine Lbr. Co., Sec. 1-7-12	S.D. 2,440 ft.
W. M. Coates' No. 1 Hale, NE cor. SW NE, Sec. 1-7-13	Completed, flowing 1,000 bbls. 2,386 ft.
Hawkins et al's No. 1 Moran, Sec. 1-7-11	400 ft. oil in hole 2,620 ft; W.O.S.R.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-13	Tested dry; S.O. 2,400 ft.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11	S.D. 2,550 ft.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11	Began July 18; set 10-in. 101 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11	Drlg. 1,500 ft.
Loring Oil Co.'s No. 16 Bowman-Hicks, 640 ft. W, 300 ft. S. C. Sec. 3-7-13	Bailing to test 2,627 ft.
Loring Oil Co.'s No. 17 Bowman-Hicks, 1,600 ft. S, 275 ft. W, NE cor., Sec. 16-7-12	Drlg. 2,385 ft.
Lyons & Neely's No. 1 Duggan, NW SE, Sec. 14-7-11	Location.
Magnolia Pet. Co.'s No. 1 Peterson, 200 ft. S and E, NW cor. NE NE, Sec. 10-7-11	Drlg. shale 2,266 ft.
L. K. McGuffin's No. 1 Bush, NW cor. NW SE, Sec. 1-7-11	S.D. 400 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11	S.D. 88 ft.

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Shut-in Wells Lower Kansas Output

Production Drops to Average of 97,100 Bbls. a Day. Public Service Commission Suggested Withholding Crude

By W. A. Spinney
Staff Correspondent, Kansas Fields

Another decline in production in Kansas was reported for the week ending July 25, mostly due to the shutdown movement started before the crude oil market prices were increased, in the last half of the week. The decline was approximately 2,000 bbls. a day. The daily average production was 97,100 bbls. a day for the seven days.

The State's daily allowable was placed at 110,000 bbls. a day, but the production has been below that figure during most of the first six months of the year.

The deep sand production in the Eastborough Pool, in Sedgwick County, was extended approximately three-quarters of a mile north. The Derby Oil Co.'s No. 6 Eastborough, SE cor. NW NE, Section 19-27-2, was estimated to be a 500-bbl. well by the owners. The well made 140 bbls. from the Viola lime at 3,285-88 feet in the first five hours. It is the first deep test drilled on the north side of the pool. The offset producer, Magnolia Petroleum Co.'s No. 5 Wheeler, is expected to be drilled deeper. It is now producing from the chat formation. Other producers may later drill their wells in the north end of the pool deeper. The Derby Oil Co.'s well has been producing from the chat formation for several months.

Another attempt to locate oil in Harvey County is to be made in Faulkner & Liggett's No. 1 Davis, SW cor. SE NE, Section 7-24-1. The test is located about 3½ miles south of Newton and 10 miles north of the Valley Center Pool, in Sedgwick County. It is located on a structure core drilled by the Shell Petroleum Corp. and the area has been checkerboarded by major oil companies. The leases were bought when the drilling campaign was in progress in the Valley Center Pool, in Sedgwick County.

New Well in Reno County

Lloyd, Frost, Study & Turner, in their No. 1 Goering, SE cor. NE NW, Section 1-23-4w, are completing the sixth well in the Haury Pool, in Reno County. Oil rose 2,400 feet in the hole. The oil was found in the chat at 3,241-50 feet. The well offsets the Derby Oil Co.'s No. 1 Goering, which was a 300-bbl. producer. The discovery well was a gas well.

Commission Suggests Shutdown

The Kansas Public Service Commission, without issuing any formal order, suggested that producers shut down their wells and all oil production in the State and withhold all supplies stored in the State until crude oil prices are increased. Cessation of drilling activities wherever possible until conditions are improved also was suggested by the commission.

The suggestions were made by the commission in a statement issued after the Continental Oil Co. announced it would pay a flat price of 40 cents per barrel for crude oil in Kansas, Oklahoma and North Texas, but before other companies had raised their prices 20 cents per barrel on all grades.

In issuing the statement, Thurman Hill, a member of the Kansas Public Service Commission, announced that the 10 oil companies which had a posted price of 10 to 22 cents a barrel had been requested to send representatives to Topeka for a conference with the commission July 29.

The commission, in a lengthy statement, stated that "Kansas crude oil prices, 10 to 22 cents per barrel, are too low and should be immediately increased. Landowners are being deprived of a fair return by having their oil pumped out and sold at ridiculously low prices. The commission, acting for the best interests of the citizens of the State, deplores the existence of the situation that permits a few to take advantage of the Kansas producers and landowners and asks for the co-operation of all citizens affected by the oil business in aiding them to correct the unfair situation of taking Kansas resources without adequate compensation."

The Continental Oil Co., which increased the market price of crude, does not buy anything but high gravity oil. Southeastern Kansas producers were benefited by the new prices posted by Stanolind and other buyers.

The voluntary shut down of producers has reduced available supplies. Most of the purchasers are admitting difficulty in obtaining the required amounts to ship to their refineries.

The result of the shut down of producing wells in the State was a drop in production. The State averaged less than 100,000 bbls. a day during the previous week and many believe the daily average will show a larger decrease this week. A large number of wells that have been shut in are in the so-called stripper class. As of June 1, the State of Kansas had approximately 18,500 wells making less than 5 bbls. per well a day, 1,400 wells making between 5 and 25 bbls. a day. Kansas had 400 wells making between 25 and 100 bbls. a day, and 133 wells above 100 bbls. a day.

During the last few months the potential production in the State of Kansas has increased more than double. In 1928 the daily average production had declined to 90,000 bbls. a day and on July 1, 1931, the State was estimated to have a potential of 200,000 bbls. a day. The gain in production and the newly discovered areas is believed to be due to the improved method of exploration. The core drill and the geophysical surveys are methods which have been used to locate regional highs which indicate the presence of favorable structures where oil is usually found.

In McPherson County

One hundred twenty wells have been completed in the Ritz-Canton-Decker district of McPherson County. Of this number 76 were oil wells and 44 were gas wells. The producing area is now approximately 8 miles long and 5 miles wide. McPherson County now has 53 drilling tests.

The Stanolind Oil & Gas Co.'s No. 4 Flook, NW cor., Section 1-20-2w, on the west side of the Ritz-Canton Pool, and a diagonal southeast offset to the large well recently completed by Dickey and others, which made 6,722 bbls. a day, is estimated to be a 5,000-bbl. well. It was shut in after flowing 200 bbls. in an hour from chat at 2,924-57 feet. It was the thirty-seventh producer completed in the chat in the field. It is estimated that the potential of the Ritz-Canton Pool is now in excess of 100,000 bbls. a day.

In the Ritz-Canton Pool, W. C. McBride, Inc.'s No. 2 Whitright, NW cor. SW, Section 30-19-1w, found 15,000,000 feet of gas in the chat at 2,919-57 feet where it was still drilling and was showing oil. It will be the sixty-fifth well in the field.

Lario Oil & Gas Co.'s No. 2 Wiggers, NW cor. NE, Section 36-19-2w, was being prepared for a 15-quart shot in the Viola lime at a total depth of 3,398 feet. The same company's No. 1 Miller, NE cor. SE NW, Section 6-20-1w, was given a potential rating of 2,150 bbls. of oil a day, based on a 12-hour swabbing test from the Viola at 3,395-3,426 feet.

A number of other tests are nearing the pay formations in the Ritz-Canton and Voshell Pools. The Stanolind Oil & Gas Co.'s No. 2 Zerger, NE cor. SE SE, Section 16-21-3w, in the southeast extension to the Voshell Pool, made 292 bbls. of oil in 10 hours from the Silicious lime.

Ivan Otstot and others' No. 1 Neufeldt, SW cor. NE, Section 15-21-3w, in the southeast extension to the Voshell Pool, was drilling near the top of the chat at 2,981 feet.

Phillips Petroleum Co.'s No. 2 Grattan, SE cor., Section 19-19-1w, was full of oil from the Viola lime at a total depth of 3,416 feet.

Detrick & Langston and others' No. 1 Purcell, NW cor., Section 33-19-9w, was shut down until the operators decide what formation the test has reached, since there is some doubt as to whether or not the test is bottomed in the Silicious lime. It had 800 feet of fluid in the hole, mostly water. The well showed oil from a formation at 3,271-79 feet, and was drilled deeper to a total depth of 3,300 feet, after the operators had swabbed out the 2,400 feet of oil in the hole. It refused to fill up with fluid again after four hours' swabbing, and was showing water. Hope of another Silicious lime pool diminished when the well made 8 bailers of water and after drilling to a total depth of 3,301 feet sulphur water started filling the hole. It showed approximately 50 bbls. of oil a day when first swabbed.

Cowley County

Sooby and others' No. 2 Bouman, CNL SE, Section 8-32-5, is spudding.

Greenwood County

Empire Oil & Refining Co. and others' No. 3 Hillman, SW cor. NE NE, Section 35-23-11, made 65 bbls. in sand 1,847-69 feet, total depth 1,878 feet. Gore and Tidal Oil Co.'s No. 1 Davis, NW cor. SE, Section 6-24-12, has been completed for 150 bbls. in sand 1,723-49 feet.

Harvey County

Liggett and others' No. 1 Watton, SW cor. SE NE, Section 7-24-1, is a rig under construction.

McPherson County

McPherson Oil & Gas Co. and Shell Petroleum Corp. made location for No. 3 Fleming, C NE NW, Section 11-19-2w, Ritz-Canton area. No. 4 Myers "B," C SW SE, Section 14-19-2w, is a rig going up. Derby Oil Co. and The Texas Company staked location for No. 1 Unruh, SE cor., Section 26-19-2w, J. H. Reed and others' No. 1 Keefer, NW cor. SW NE, Section 21-19-1w, is moving in. Gilmore Oil Co. and others made location for No. 1 Blair, NW cor. NE, Section 28-19-1w. McPherson Oil & Gas Co. and Shell Petroleum Corp.'s No. 4 Decker, C NE SE, Section 11-19-2w, made 57,000,000 feet of gas in chat 2,895-2,915 feet. No. 3 Griffin, C SE NW, Section 14-19-2w, has been completed for 14,358,000 feet of gas in chat 2,891-2,938 feet. Derby Oil Co. and The Texas Company's No. 1 Flook, SW cor., Section 29-19-1w, has been abandoned at 3,461½ feet. Jones and Shell Petroleum Corp.'s No. 1 Peterson, NW cor. SW SW, Section 7-20-1w, is dry and abandoned at 3,456 feet. Sinclair Oil & Gas Co.'s No. 10 Morehouse, NE cor. NW NE, Section 4-21-3w, topped Silicious lime at 3,341 feet, drilled to 3,351 feet and was completed for 265 bbls.

Morris County

Allender and others made location for No. 1 Wycoff, C SW SE, Section 5-17-7.

Russell County

Liggett and others' No. 1 Whitson, SW cor. NW SW, Section 16-11-15w, has been completed for 40 bbls. in sand 3,184-87 feet.

Stevens County

Texas Interstate Pipe Line Co.'s No. 1 Geyer, C SW, Section 2-33-38w, has been completed for 2,800,000 feet of gas in sand 2,560-2,809 feet.

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boertz, NW SE SE, Sec. 13-18-12w	Shut down 2,440 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Fishing 2,420 ft.
McCool et al's No. 1 Teern, NW SE NE Sec. 12-20-11w	Shut down 1,600 ft.
CHASE COUNTY	
Borden et al's No. 1 Atkinson, NW SE Sec. 18-18-7	Rig on ground.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor. Sec. 19-8-2	Shut down 2,700 ft.
COFFEY COUNTY	
Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Shut down 1,565 ft.
COWLEY COUNTY	
Fisher et al's No. 1 Hurt, C SW SE SE Sec. 11-34-3	Rig.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Drlg. 3,970 ft.
ELLSWORTH COUNTY	
Keyes Bros.' No. 1 Gregory, SW cor. Sec. 33-16-9w	Drlg. 725 ft.
Hershey et al's No. 1 Schultz, C NE Sec. 9-14-8w	Silicious lime 3,462-68 ft.; water; abnd.
Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 2 hrs.; shut in; est. 2,000 bbls.; no pipe line connection.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w	Silicious lime 3,332-47 ft.; est. 1,500 bbls. a day; shut in.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w	Underreaming 3,256 ft.
FORD COUNTY	
Carter Oil Co.'s No. 1 Everett, C NE Sec. 22-29-21w	Drlg. 5,841 ft.
Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w	Shut down 5,105 ft.
GRAHAM COUNTY	
Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w	Shut down 4,648 ft.
KINGMAN COUNTY	
Skelly Oil Co.'s No. 1 Miles, NE cor. Sec. 30-27-10w	1,625-40 ft. 2,000,000 ft. gas; at 2,095-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,355 ft.; T. D. 3,441 ft.; shut down; estimated at 600 bbls. a day.
HARVEY COUNTY	
J. P. Flannigan's No. 1 Sheridan, C SW Sec. 32-22-1	Drlg. 990 ft.
LINCOLN COUNTY	
Buck et al's No. 1 Schulz, C SE NE SW Sec. 19-11-6w	Rig on ground.
MARION COUNTY	
Midwell's No. 1 La Master, NW cor. Sec. 31-22-4	Shut down 650 ft.
MORTON COUNTY	
Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w	T. D. 3,640 ft.; shut down.
MORRIS COUNTY	
Urschel et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7	Machine.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9	Drlg. 2,478 ft.

(Continued on Page 177)

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Seamless Mills: AMBRIDGE, PENNA.

Storms Halt Work in Southwest Texas

Wildcats in Goliad and Jim Wells Counties Still Uncompleted. Other Projects in District Make Little Progress

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., July 27.—Heavy rains that made it impossible to do field work left the Southern Crude and V. F. Neuhaus' No. 1 Pettus in Goliad County and the Carsil Oil & Gas Co.'s No. 3 McGill in Jim Wells County about where they were a week ago, already to complete but not completed. Many other projects in Southwest Texas made little or no progress during the week under review.

The No. 1 Pettus in Goliad County had started swabbing late in the week and was showing oil, but had not been swabbed down far enough at last reports to give it a test and the crew was working daytime only. This is the test 15 miles northeast of the Pettus Field that picked up the Pettus sand at 4,282-87 feet which is producing in the Pettus Field at slightly less than 4,000 feet. While the unexpected may happen, the No. 1 Pettus was not expected to make a big well, basing an appraisal on the drill stem test, but it was expected to be an oil well and to open a new pool along the Reynosa outcrop, the importance of the pool to be determined only by additional drilling.

The No. 1 McGill of the Carsil Oil & Gas Co. has a total depth of 2,804 feet and the discovery well which was plugged and abandoned to save the sands because of the well running wild for two days had a total depth of 2,689 feet. The No. 2, drilled 900 feet north of No. 1, missed the sands, and the No. 3, drilled 500 feet southeast, is getting the sand 115 feet deeper but showing considerable gas. It bridged last week when the crew started to complete it but the bridge was cleaned out and a few days will disclose what the well will do unless there is more delay from rainy weather.

This test has not been showing up as well as it had been hoped and the difference in depth is puzzling. It looks as though the pool must be located to the west and it is possible that another test will be started in that direction.

New Sand Proved Up

Houston Oil Co. has proven up the new sand in the Cartwright or Mount Lucas Pool in southeastern Live Oak County at 3,565 feet in the No. 23 Cartwright. It topped the sand early in June and got the showing of oil and after setting casing swabbed 77 bbls. of 24 gravity oil in 2½ hours. It shut down to standardize with the hole standing 1,700 feet in oil. It is now on the beam, having been completed last week, and is pumping at the rate of 100 bbls. of oil a day which makes it a fairly good well.

However, the company is not without having its grief. The No. 14 Cartwright, which was a gas well in the regular sand producing in the field at 2,292 feet and located 1,000 feet west of the No. 23 Cartwright, has been drilled deeper in hope of finding the sand producing in the No. 23 Cartwright. At 3,777 feet it is coring and had no sand yet, and is 212 feet deeper than the No. 23 Cartwright.

While operations generally in Southwest Texas are the quietest they have been in many years, operators are watching the few tests drilling with keen interest. It is recognized that when times improve and wildcatting increases the country from Raccoon Bend to the southern part of Starr County following the outcrop of the Reynosa will be one of the popular strips of territory in which to wildcat and another will be the territory from the coast inland about 50 miles. Thus far the Houston Oil Co. has not been especially successful in finding deeper pay sands in the Cartwright Field and Carsil's No. 3 McGill in Jim Wells and Southern Crude and Neuhaus' No. 1 Pettus in Goliad have not proven big finds, but they have added to the sum total of geologic information on the area and have improved the appearance of the territory.

Balcones Fault Zone

Along the Balcones fault zone W. J. Walton's No. 1 Zoborolski, 6 miles southwest of the Darst Creek Field, flowing 8 bbls. of oil from the chalk at 2,210 feet, has been making some big heads at intervals which increases the average above 8 bbls a day. Whatever can be said about it, the well is probably a commercial well in the usual sense and according to old-time schedules. It was drilled with the idea of going to the Edwards unless a commercial well could be completed above that. Probably eventually it will be carried to the Edwards lime or else another hole will be drilled near it. At any rate there seems a fairly good chance of an Edwards lime field being opened up.

M. O. Rayor's No. 1 Dunlop has been flowing by heads at 16-hour intervals and making something less than 50 bbls. a day. It was drilled to the Edwards at 2,502 feet and is located half way between the old Luling Field and the town of Luling in Caldwell County. It was plugged back, however, to 2,480 feet to get rid of water, but some think the oil coming out of it is Edwards lime oil. Rayor will probably do some more drilling. At any rate there is nothing very threatening about the proposition at this time.

Ralph R. Lewis is rigging up on a test about 8 miles northeast of the old Luling Field and about 5 miles southwest of the Dale Field and on a line with those two fields and the Branyon well in the middle, which opened a pool of only one well. Existence of a fault has been proven by many tests drilled to the southwest of Dale and study of the territory has convinced Lewis' geologists that there is room for an Edwards lime pool in that territory and with the dry holes seeming to indicate that it has a chance.

The test is located on the Keith McGee tract in the western extremity of the James Pinchback Survey, the survey being irregular in shape. The test is 600 feet from the east and south lines of the tract and it will be an Edwards lime test. Gulf owns the acreage and the test is on a deal in which the acreage is acquired from the Gulf. The test is a little less than a mile nearly due west of the Mills and others' No. 2 McMahon, which blew out and made a 9,000,000-foot gas well at 959-63 feet. Mills' No. 1 McMahon, which made a small oil well at shallow depth, has been deepened to 2,502 feet where it is standing, but has now reached the Edwards lime. A line of tests to the northwest of Lewis' No. 1 McGee has got the formations on the downthrow side. New geology worked out on the district will result in the new wildcat being closely watched.

Corpus Christi District

Of three tests in the Saxet Field west of Corpus Christi the Houston Oil Co.'s No. 1 Lawrence, carried by some as the No. 2 Harrell, which blew out at 2,740 feet the middle of May and ran wild for several days, has started to deepen and made the first new hole last week, being now reported at 2,950 feet. After the well had been shut in and under control the gas pressure was so heavy that it had to be weighed down with mud and the casing anchored with cement. A great deal of difficulty was encountered with

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SOUTHWEST TEXAS PROVEN AREAS

COOKSEY POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Witherspoon Oil Co.'s No. 1 Ramsinski	T. D. 1,500 ft.; comp. 15 bbls.

DOBROWOLSKI POOL—BEXAR COUNTY

W. S. Rogers et al's No. 1 L. Donnop, Juan Montes Sur.	T. D. 612 ft.; shut down.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, A. Floyd Sur.	T. D. 2,572 ft.; setting csg.

DARST CREEK FIELD—GUADALUPE COUNTY

Magnolia Pet. Co.'s No. 8 M. T. Klein, 300 ft. SE of No. 1	T. D. 1,600 ft.; drlg.

CHAPMAN POOL—WILLIAMSON COUNTY

Chapman et al's No. 2 Lawrence, S. Miller Sur.	T. D. 1,916 ft.; set 6⅝-in. csg.; waiting on cement.
Vitex Oil Co.'s No. 8 Kilgore, Simon Miller Sur.	T. D. 1,735 ft.; waiting on cement.
Westbrook Oil Corp.'s No. 8-A Lawrence, 150 ft. from S and E lines of tract in S. Miller Sur.	Location.

PETTUS POOL—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr Sur.	T. D. 3,930 ft.; standing.
Geo. N. Moore et al's No. 2 Freeland in John Pace Sur., 1,000 ft. from S line, 600 ft. from E line of survey	T. D. 3,706 ft.; tested salty mud.
United Prod. Co.'s No. 39 Ray, 1,130 ft. to SE line, 2,396 ft. to SW line of T. Hanson Sur.	T. D. 650 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 14 Cartwright, 1,000 ft. W of No. 23 Cartwright	T. D. 3,778 ft.; drlg.
Houston Oil Co.'s No. 23 Cartwright, 691 ft. N, 30° E of No. 11	T. D. 3,565 ft.; pumping 35 bbls. daily.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim	T. D. 3,900 ft.; drlg.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Maggie Harrall, 330 ft. from S and W lines of Blk. 32, Sec. 311	T. D. 4,651 ft.; testing sand.
Houston Oil Co.'s No. 1 Lawrence	T. D. 2,740 ft.; preparing to complete as gasser.
Houston Oil Co.'s No. 2 Rand Morgan	T. D. 4,375 ft.; plugged back to 4,097 ft.; swabbing.

LAREDO DISTRICT

KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 164	T. D. 6,900 ft.; drlg.

COLE POOL—WEBB COUNTY

F. P. Zoch and Trinity Drillers' No. 1 Cuellar, 1,500 ft. from NW and SW lines of Share No. 2, W of Bruni	T. D. 2,065 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 Benavides, 660 ft. from S line, 150 ft. from E line of Sur. 693	Location.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Glen Mathis, trustee's No. 1 Martin, 150 ft. to NE line, 2,640 ft. to SE line of tract in Jose Antonio Navarro Sur.	T. D. 2,012 ft.; fishing.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan	T. D. 696 ft.; fishing.
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,430 ft. to E line of James Stanford's No. 155	T. D. 1,090 ft.; drlg.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 574 ft.; shut down.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,360 ft. to N line, Sur. No. 94	T. D. 712 ft.; shut down.

BASTROP COUNTY

W. A. Allen's No. 1 Birmingham, James Stewart Sur.	T. D. 235 ft.; shut down.
Schimmel & Batts' No. 2 Williams, 650 ft. E of their No. 1 Ferguson	T. D. 1,148 ft.; drlg.
Smith & Barnes' No. 1 Marberger, 50 ft. W line, 1,360 ft. S line of tract in King & Millett Sur.	T. D. 493 ft.; coring sand.
Texas Dev. Co.'s No. 1 C. H. Ray, 800 ft. from W line and 400 ft. from S line of farm in Thomas Christian Sur.	Derrick.

BELL COUNTY

Mildon Oil Co.'s No. 1 J. K. Edds, Maxiano Moreno Sur.	T. D. 875 ft.; set 6⅝-in. csg. at 866 ft.
C. O. Alford's No. 1 A. L. Keifer, 150 ft. from S and W lines of tract in Woodford Sur.	Location.
Vilas Oil Co.'s No. 1 B. F. Whittington, 9 miles E of Holland	T. D. 1,298 ft.; shut down.

BROOKS COUNTY

Ike Howeth's No. 1 Singer, 400 ft. E of Humble's No. 1 Singer	T. D. 2,230 ft.; testing sand.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore	T. D. 1,510 ft.; standing.
Grebin & Woods' No. 1 Riggs, 4,800 ft. to E line, 200 ft. to N line of James Nowland Sur., 6 miles W of Skidmore	T. D. 5,150 ft.; drlg.
Mauldin et al's No. 1 Kimball, 300 ft. S Grayburg's No. 1-A Kimball, S. Winship Sur.	T. D. 3,544 ft.; fishing.

BEXAR COUNTY

Ingersoll-Mitchell's No. 2 E. B. Carruth, 750 ft. S of No. 1	T. D. 620 ft.; abnd.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio	T. D. 850 ft.; drlg.

CALDWELL COUNTY

Mills et al's No. 1 McMahon, 275 ft. SW line, 75 ft. SE line of tract, J. Pinchback Sur.	T. D. 2,502 ft.; shut down.

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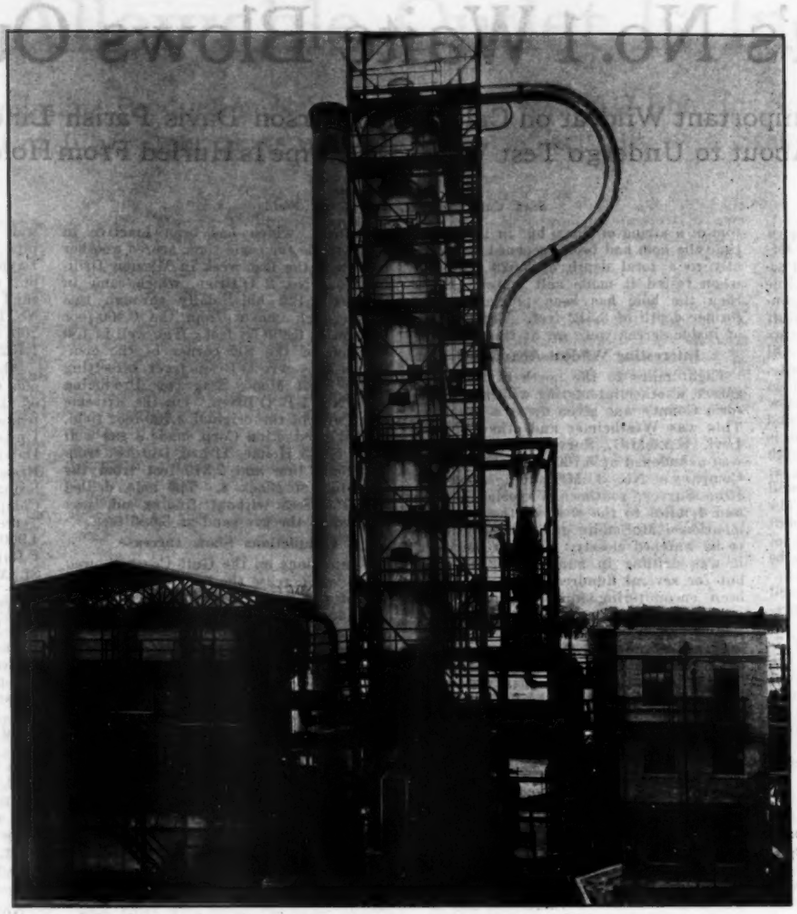

Flexible Rerun Units

Flexibility of this Foster Wheeler rerun unit permits handling either dewaxed solution or pressed wax distillate. When running dewaxed solution the products recovered include naphtha, gas oil and bright stock. When handling pressed wax distillate, gas oil and three neutral oils are recovered.

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FOSTER WHEELER

Vacuum's No. 1 Waite Blows Out Again

Important Wildcat on Calcasieu-Jefferson Davis Parish Line About to Undergo Test When Drill Pipe Is Hurled From Hole

By Nell Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., July 27.—The Iowa geophysical prospect on the Calcasieu-Jefferson Davis Parish, Louisiana, line again figured conspicuously in Gulf Coast developments when Vacuum Oil Co.'s No. 1 Waite, first test drilled on the prospect, blew out for the second time. The well is making gas with salt water and at this time is still out of control. The gas has forced shut down of the boilers, delaying work of killing the well until other power can be provided.

The blowout occurred while the well was standing with casing cemented preparatory to testing a sand showing oil at 6,961-79 feet. A one-string job of 7-inch casing with a joint of screen on the bottom had just been run in the hole and cemented. The blowout, however, came between the 7-inch and the 9⅝-inch casing set at 4,985 feet and presumably from sand at 5,001-08 feet, in which early in January the well blew out, later being completed for a short-lived producer.

In this shallower sand the well blew out while preparations were being made to test, hurling three joints of drill pipe out of the hole, damaging the derrick. On that occasion the gas was killed quickly and after the derrick had been rebuilt, the well was completed successfully flowing on a three-hour gauge at the rate of 600 bbls. daily on a half-inch choke. Put on a three-eighths inch choke the well flowed 250 bbls. of pipe line oil daily with an estimated 4,000,000 feet of gas. Later water showed up, increasing to about 35 per cent of the total fluid, and the well was shut in pending completion of additional storage and a treating plant. Two weeks later when opened the well tested salt water and since then the hole has been deepened, finding the new lower sand. The sand was encountered several weeks ago but in trying to set casing and screen one joint of screen was twisted off in the hole necessitating a fishing job.

Favorable Geophysical Prospect

Iowa has been looked upon as one of the more favorable geophysical prospects. As no other tests except Vacuum's No. 1 Waite have been drilled, the prospect so far has not been proved as a dome but as outlined by seismograph it lies in Sections 18 and 19-9s-6w and Sections 12, 13 and 24-9s-7w. Location of the Waite well is 225 feet out of the SE corner of Section 12. The east line of Section 12 is the Calcasieu-Jefferson Davis Parish line with the well on the Calcasieu Parish side. Shell Petroleum Corp. is credited with discovery of the prospect and made location for a test, No. 1 Heyd, just over the line in Jefferson Davis Parish, but that test was not drilled.

In southern Victoria County in the lower Gulf Coast territory, T. B. Slick estate's wildcat, No. 1 McFaddin, J. Vairan Survey, was completed as a gas well estimated at 50,000,000 feet of dry gas, 1,475 pounds pressure on the casing and 1,300 pounds on the liner, through two quarter-inch chokes, from sand at a total depth of 3,512 feet. This wildcat, located 3½ miles to the north of the McFaddin gas field in the Bloomington district, in which three wells have been completed in a 2,740-60-foot sand, apparently proves up a field of large extent.

The Slick well has been in progress of completion since early in June. Several attempts to bring it in failed when high pressures blew the screen out of the hole. Later the screen was run in on the bottom of a string of liner, but in the meantime the hole had been deepened accidentally to a total depth of 3,529 feet and when tested it made salt water. Since then the hole has been plugged to its former depth of 3,512 feet. Three joints of inside screen were set at this depth.

Interesting Wildcat Abandoned

Eight miles to the north of the Slick gasser, another interesting wildcat in Victoria County was given up as a dry hole. This was Westheimer and others' No. 1 Levi, S.A.&M.G. Survey No. 4, which was abandoned at 5,760 feet. The Texas Company's No. 3 McFaddin, John M. Rine Survey, southern Victoria County, and 4 miles to the west of the formerly mentioned McFaddin gas field, continues to be watched closely. Late in the week it was drilling in gumbo at 2,765 feet but for several hundred feet back it has been encountering numerous gas showings. Drill stem tests, however, did not justify screen tests. The well is slightly over a half mile to the north and west of The Texas Company's No. 2 McFaddin, which early in the year was completed as a wildcat gas well at a total depth of 2,025 feet. Due to a heavy water flow that well has been shut in since completion.

Refugio, which has been inactive in completions for some time, scored another good well the last week in Mission Drilling Co.'s No. 2 O'Brien, which came in flowing 1,125 bbls. daily through two quarter-inch chokes from the 6,400-foot horizon at 6,450-58 feet. The well is 150 feet out of the SE corner of the company's 12½-acre O'Brien tract, offsetting to the west Moody-Seagraves Producing Co.'s No. 1-B O'Brien. On the extreme north end of the original 3,700-foot field. United Production Corp. made a gas well of its No. 5 Holmes Heard, 660 feet from the north line and 2,375 feet from the west line of Block 8. The hole, drilled to 3,765 feet without finding oil, was plugged to the gas sand at 3,655 feet.

Completions Show Increase

Completions on the Gulf Coast showed a decided increase the last week although few of the wells or abandonments were of importance. Gulf Production Co. is putting its No. 4 Wilburn, east flank of Barbers Hill, on the pump after working over and sidetracking to sand at 5,175 feet. At Blue Ridge, Telschaw, Caddy and others' No. 5 Blakely, formerly drilled to a total depth of 3,105 feet, was sidetracked to sand at 2,800 feet, where 56 feet of 4¾-inch screen was set, and the well was completed flowing 126 bbls. of pipe line oil daily. At Damon Mound, Layne and others' No. 6 Wisdom was put on the pump for 30 bbls. daily in sand at 2,328-83 feet. Port City Oil Co.'s No. 13 Jennings-Heywood, Jennings, made 200 bbls., 5 per cent water, in sand at 1,732 feet.

Abandonments included Cranfill-Reynolds Co.'s No. 7 Davis, wildcat southwest of the Esperson Field, Liberty County, temporarily quit at 6,302 feet in shale; United North & South Oil Co.'s No. 1 Daisy B. Lewis, S. F. Austin 5 League, Brazoria County, drill stem stuck and losing returns, 4,404 feet; The Texas Company's No. 13 State, Lake Barre, Terrebonne Parish, Louisiana, salt 4,543-4,900 feet; Federal Petroleum Co.'s No. 1 Raphael Dangareaux, Section 140-9s-5e, St. Martin Parish wildcat, dry at 5,012 feet; and Weneedan Oil Co.'s No. 1 Palmer, Charles Underton Survey, Hull, Liberty County, quit in rock, 1,667 feet.

One of the few remaining interesting wildcats drilling on the Gulf Coast at this time is Pure Oil Co.'s No. 1 Alliance Trust Co., 2,600 feet north and 300 feet east of SW cor., Section 34-11s-1w, located on the Gueydan geophysical prospect in Vermillion Parish, Louisiana. This test was drilling below 6,080 feet in hard, sandy lime, and according to calculations should top the dome before long, if a dome exists. Gueydan is supposed to be one of the deepest domes on the coast, the test being located on what has been figured as about the top.

Second Test Drilled

No. 1 Alliance is the second test drilled on the prospect, the first, No. 1 Southwest Louisiana Land Co., 4,680 feet east and 3,200 feet south of No. 1 Alliance, being abandoned as dry at 6,594 feet. The prospect was discovered by Pure Oil Co. with the seismograph. This company owns the bulk of the acreage although Humble Oil & Refining Co. has a large block.

Cullen & West and Gulf Production Co. have drilled into the pay sand in their third test at Lockwood (Thompson or Clear Lake), eastern Fort Bend County, and were expected to have another well early this week. This test, No. 1 A. P. George, south offset to No. 1-A Lockwood, the second well in the field, has cemented 9⅝-inch casing in sticky shale at 3,493 feet, just above the sand. The George well checked closely with the No. 1-A Lockwood, which has 9⅝-inch casing at 3,450 feet with bottom of the hole at 3,476 feet. It was completed flowing 85 bbls. hourly. These two wells are approximately a half mile to the southwest of No. 1 Lockwood & Sharp, the discovery well, which is at a total depth of only 3,087 feet. All the wells are in the John Rabb Survey.

Advances in crude postings by all buyers have resulted in a decidedly more optimistic feeling among Gulf Coast operators who say that the oil business, as far as this territory is concerned, has passed its worst point and that conditions here gradually will return to normalcy. Gulf Coast oil prices have been the lowest since the early days of Spindletop and while the increased prices still do not permit profitable operation of much of the coast's settled production nor warrant resumption of new drilling, yet the trend is in the right direction. During the week drilling operations dropped off to the lowest mark in many years while daily average production was the lowest since early in 1928. The Gulf Coast is one district in the State in which no proration has been in effect and in which substantial reduction in production has been accomplished solely by voluntary curtailment of drilling.

GULF COAST FIELDS AND WILDCATS

Week Ended July 25
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Gulf Prod. Co.'s No. 4 Wilburn (D.D.), Henry Griffith League, 1,400 ft. W line and 50 ft. S of lease	Total depth 5,290 ft.; sidetracked to sandy shale 5,175 ft.; rigging up to deepen.
Humphreys Corp.'s No. 6 E. H. Winfree, W. D. Smith Sur., 50 ft. from N line and 50 ft. from W line of tract	Total depth 4,220 ft.; drlg. sidetracked hole in rock 3,878 ft.
Humphreys Corp.'s No. 1 Fitzgerald-Meadows, Henry Griffith League, 50 ft. S and 100 ft. E of NW cor. of tract	Total depth 4,253 ft.; drlg. sidetracked hole in shale 4,130 ft.
Humphreys Corp.'s No. 1 Ebanspacker, Henry Griffith League, 700 ft. from the N line and 70.6 ft. from the E and W lines of the tract	Tentative location.
Sinclair Oil & Gas Co.'s No. 3 Smith, W. D. Smith Sur., 50 ft. out of S cor. of tract	Drlg. lime rock 4,695 ft.
Sun Oil Co.'s No. 2 Smith, W. D. Smith Sur., 75 ft. from W line, 50 ft. from N line of tract	Milling on collapsed packer 5,408 ft.
Sun Oil Co.'s No. 3 Smith, W. D. Smith Sur., 50 ft. from S line, east offset Yount Lee Oil Co.'s No. 3 Winfree	Sidetracking 5-in. (O.D.) screen 5,270 ft.
Sun Oil Co.'s No. 1 Anna Higgins, Wm. Bloodgood Sur., 230 ft. from E line and 31 ft. from S line 10-acre tract	Drlg. hard sandy shale 3,497 ft.
The Texas Company's No. 2 Winfree, west flank, W. D. Smith Sur., 264 ft. N, 50 ft. W at right angles out of SE cor. of lease	Total depth 5,623 ft.; sidetracked 5,510-18 ft.; fishing drill collar.
The Texas Company's No. 6 Wilburn, Henry Griffith League, 250 ft. W of No. 4 and 50 ft. from S line of lease	Total depth 4,491 ft.; reaming 3,861 ft.

HUMBLE—HARRIS COUNTY

Rio Bravo Oil Co.'s No. 2 H.E.&W.T., Adams Sur., 250 ft. N along railroad tract from No. 1 and 25 ft. W from center of said tract	Total depth 4,742 ft.; trying to sidetrack 2,468 ft.
The Texas Company's No. 25 House (D.D.), M. Owen Sur.	Drlg. shale and lime 4,827 ft.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 200 ft. E and 1,845 ft. S of SW cor. Marshall Beauchamp Sur., in the T. J. Notgrass Sur.	Derrick.
The Texas Company's No. 3 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2	Location.

MARKHAM—MATAGORDA COUNTY

Ike Laughlin et al's No. 1 W. H. Gray, 400 ft. from S line, 150 ft. E line, Blk. 2, Wm. Hadden Sur.	Derrick.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 21 Cade, Fitzsimmons Sur., 150 ft. W of No. 17	Drlg. hard lime, shale and shell 4,986 ft.

HULL—LIBERTY COUNTY

The Texas Company's No. 2 Barrow (W.O.), Jesse Devore Sur., 276 ft. W and 50 ft. S of NE cor. Barrow tract	Rig up to deepen 3,866 ft.
Weneedan Oil Co.'s No. 1 Palmer, Chas. Underton Sur., 150 ft. from N line and 200 ft. from E line of tract	Abandoned in rock 1,667 ft.

DAMON MOUND—BRAZORIA COUNTY

Layne et al's No. 8 Wisdom, 155 ft. from NW line and 150 ft. from NE line, Lot 52, Blk. D, Wisdom Subd., A. Darst Sur.	Rig.
D. C. Wellock's No. 1 Damon, John P. Mills Sur., 1,115 ft. NE line and 60 ft. W line Blk. 1	Sandy shale 690 ft.; set 4½-in. csg.; shut down.

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Hobbs Allowable Outlet Is Increased

Permissible Production Raised 2,000 Bbls. to 37,047 Bbls. for Second Half of July. Operations in Eddy County Virtually at a Standstill

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., July 27.—An increase in the allowable outlet of the Hobbs Pool, virtual shut-in of Eddy County wells, a new location reported in Lea County, and a test on the Stoney Butte Dome completed as a water well and turned back to the Indian Department were developments of the week in New Mexico.

The Reiter-Foster Oil Co. made a new location on the Greasewood Dome in Weld County, Colorado, and its No. 1 Ida Johnson is making progress in cleaning out cement. The Indian Territory Illuminating Oil Co.'s Morgan County wildcat is making new hole for the first time in several months. A 200,000-foot gas well was completed at 90-100 feet on the Berthoud Dome. The operations in La Plata County are resuming after being idle for several months.

Two wells on the Garland Dome in Wyoming are drilling in the Madison lime, both showing saturation. Three good producers were completed in the Osage Field, one flowing 500 bbls. the first 24 hours. A test of the Muddy sand on the Midway Dome has been delayed by another fishing job. The Prairie Oil & Gas Co. is planning to go 7,500 feet in its Bunker Hill wildcat in Carbon County.

Two wells on the Dry Creek Dome in Montana are being completed by the Ohio Oil Co., one of which is plugging back from the Lakota to the Dakota and the other will be finished as a gasser in the Frontier. One new location was made in the Cut Bank Field and several of the O'Neil wells are ready to drill in.

Two wildcats are to be drilled in Utah, one being near Prive in Carbon County, and the other on the Last Chance Dome in Emery, Sevier and Wayne Counties.

NEW MEXICO

The allowable production of the Hobbs Pool was increased from 35,070 bbls. daily for the first half of July to 37,047 bbls. daily for the second half of the month. This is practically the same as the nominations for the latter half of June. No wells have been completed in the Hobbs Pool for the last month and the potential production as established by the executive committee remains unchanged at 1,156,834 bbls. from 144 wells on 127 units of 40 acres each.

Operations in Eddy County are practically at a standstill. The Artesia Field is shut in except that the Flynn, Welch & Yates wells are being produced one day each week to keep the operating forces intact. The Continental Oil Co.'s refinery is taking oil from storage and has enough on hand to last several weeks. The Pecos Diamond Refining Co. is operating on the output of R. D. Compton's No. 1 well. The Jackson Pool is shut in except for enough crude to supply a skimming plant in the field.

Lea County

One new locafion was made in Lea County, this being the Western Drilling Co.'s No. 1 Russell-Steele, 200 feet each way out of the southwest corner of Section 14-20-33, in the Lea area. This is 3 miles west of Henderson, Dexter & Blair's No. 1 Jewett & McDonald, SE cor., Section 18-20-34, which was completed in 1929 at 3,522-35 feet after plugging back. It pumped 60 bbls. initial in 10 hours. The oil is 34 gravity and the well is connected with the Texas Pipe Line Co.'s extension from the Lea Pool.

Only two wells are active in Lea County. The Western Drilling Co.'s No. 1 State, SE NE NE, Section 16-20-32, northwest of the Lea Pool, is bottomed at 3,208 feet in lime and is running the 6⅝-inch. Culberson and Conrad's No. 1 State, C NE, Section 22-18-34, Caprock area, is bottomed at 3,260 feet and drilling up bailer lost at that depth.

Otero County

The Pasotero Petroleum Corp.'s No. 1 Evans, NW cor. SW, Section 22-24-12, 61 miles northeast of El Paso, is shut down for drilling line at 1,375 feet in lime and shale. It is just about the depth at which a break in the lime is expected.

Santa Fe County

The Meyers-Owsley Drilling Co.'s No. 1 Cantwell, NW cor., Section 5-10n-9e, near Stanley, is drilling in the red beds at below 175 feet.

Guadalupe County

The New Mexico Producing & Refining Co.'s No. 1 McMillan, SW cor., Section 24-5n-16, Mesa Leon district, is drilling at 1,650 feet in red shale showing some blue shale and red sand.

San Juan County

The Great Mesa Oil Co.'s No. 1 Roderick, NW SW SW, Section 11-22-14, Stoney Butte, has been completed at 982 feet as a water well and turned back to the Indian Department. The Continental Oil Co.'s No. 24, SW NW SW, Section 1-29-19, Rattlesnake Dome, is drilling at 4,631 feet with only 100 feet to go to reach old bottom. This well is just to the east and south of No. 17 Santa Fe, C NE, Section 2-29-19, which in 1929 encountered production in the Pennsylvanian at 6,769-71 feet, making 600 to 800 bbls. daily with about the same quantity of water. The water was coming from 6,730-46 feet and could not be shut off, the hole having been reduced to 3½ inches. The oil, which is 38 degrees gravity, separates easily from the water and the well has been on production ever since. No. 24, the well now drilling, is the second to be started with the Pennsylvanian as the objective.

The Ortega interests, who have taken over the Childers Drilling & Producing Co.'s No. 2 Ute, NW NW, Section 24-31-16w, Westwater district, are cleaning out below 2,100 feet, some gas and oil showing through the water. The hole has been standing for more than a year at a total depth of 2,490 feet, supposedly in the Dakota.

The Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, Kutz Canon district, is drilling at 3,240 feet with the Point Lookout sand in the Mesa Verde as the objective. It had some gas in the Picture Cliff at around 2,000 feet.

R. C. Oswell's No. 2, NW, Section 34-30-11w, near Aztec, is drilling at 515 feet.

McKinley County

The Johnsonwood Oil Corp.'s No. 1 Hannett, SW cor., Section 12-15-10w, Walker Dome, is drilling at 540 feet with the Dakota at 1,100 feet as the objective.

COLORADO

Among the remedies suggested for correcting disorders of the oil industry one discussed among Denver oil men was that of a state law like the one for the co-operative marketing of farm products. Under such a plan producers would combine to turn their products over to a single selling agency which would dispose of them at the most favorable time at the best prices obtainable. The selling agency for farm produce makes cash advances at the time of delivery and pays the balance prorata upon disposition of the products. It may, if it appears advisable, curtail production, store the crop indefinitely or, as has been done in some instances, destroy part of it. Divided interests become solidified and purchasers have only one seller with whom to deal.

Weld County

The Reiter-Foster Oil Co. made a location this week for its second well on the Greasewood Dome in Weld County on the Sarah Johnson and Peter C. Juhl tract in the C SE SE, Section 14-6n-61. The location is half a mile to the west of the Continental Oil Co.'s No. 1 Briggs, and the same distance to the northwest of No. 1 Ida Johnson, which is down below 6,220 feet. A rotary rig from the Seminole Field is being moved in for No. 1 Sarah Johnson and the contract has been let to Manning & Terry, Inc., who have the contract for No. 1 Ida Johnson. It will be a joint operation with the Platte Valley Petroleum Co. and is the second well to be started under the agreement signed several months ago. Upon completion of a commercial producer, the Reiter-Foster company will receive a half interest in the 320-acre tract.

The Reiter-Foster Oil Co.'s No. 1 Ida Johnson, C NE NW, Section 24-6n-61, is making rapid progress in cleaning out the cement which filled the hole almost to the top when an attempt was made to cement the 9⅝-inch at 6,220 feet. Drilling out with an 8-inch bit started at 3 o'clock on the morning of July 20 and in the first 26 hours 550 feet of hole was made. Up to last report 1,700 feet of the cement had been cleaned out. The company did not lose anything by the mishap as the well is being drilled under contract. President Paul Ache, who is giving his personal attention to this important test, explained that the accident occurred when the cement was being pumped in. The pump had been worked up to a pressure of 1,600 pounds when it broke. He expressed the opinion that the cement lacked at least 800 feet of reaching bottom and that no difficulty in cleaning out and recementing is expected.

The Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW, Section 24-6n-61, the discovery well which came in on October 10, 1930, produced 76,311 bbls. up to July 1, 1931. It was not put on production immediately after coming in, but since February 1 has averaged 320 bbls. daily. It is supposed not to have drilled into the sand and at the most can be only a few inches in it.

The Continental Oil Co.'s No. 1 Gadbois, C SE SW, Section 24-6n-61, half a mile south of the discovery, is pouring concrete for derrick foundation, and its No. 1 Briggs, C SE SW, Section 13-6n-61, is building derrick. Both of these are to be rotary operations.

In the southwestern part of the county, the Retter Oil Co.'s No. 1 Smith, C E half, Section 14-1n-66, Brighton-Lupton district, is bottomed at 1,171 feet and is pulling the 12½-inch, of which 800 feet was in the hole. It will be replaced and rerun to the top of a sand at 1,100 feet. George E. (Dad) Retter, who started this test seven years ago when the major oil companies were indifferent to that area, has stayed with it through the intervening years only to find that the opinion of northeastern Colorado has undergone a complete reversal and that it is now highly regarded. While the first objective in his test is expected at around 1,700 feet, the hole will be large enough to go on down later if desired.

Morgan County

The Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan anticline, apparently has overcome its difficulties since installing rotary bit and is drilling at 4,160 feet, 70 feet below old bottom where it stood for several months.

The Colorado Associated Oil Co., which will test the North Fort Morgan Dome, has opened offices in the First National

IMPERIAL OIL TAKES ONLY HALF OF TURNER VALLEY'S PRODUCTION

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, July 25.—Imperial Oil, Ltd., has announced that, beginning at once, it will take only 50 per cent of the production of Turner Valley wells. The 50 per cent will be based on the June deliveries. In connection with this decision, A. M. McQueen, vice president and head of the production department of Imperial Oil, Ltd., made the following statement: "We were reluctantly forced to take the step of cutting down deliveries from all companies to our refinery at Calgary. The tanks are filled and under present conditions it is not possible to market the total amount of naphtha and oil being produced by companies selling their products to us."

The restriction applies to Royalite Oil Co., Dalhousie Oil Co. and other Imperial subsidiaries as well as to independent companies which have been selling to Imperial Oil, Ltd.

Regal Oil & Refining Co. of Calgary will, it is announced, continue to take 100 per cent production from all companies under contract. Companies delivering to the Regal refinery include Okalta Oils, Ltd.; Homestead Oils, Ltd.; Wellington Oil & Gas Co.; Regent Oil Co.; Alberta Federated Oils; Spooner Oils, and Vulcan Oils.

Following the announcement, independent oil operators affected by the restriction of deliveries held a meeting when this and other problems affecting the independent operators were discussed behind closed doors. A committee was appointed, comprising A. H. Mayland, J. H. Goodwin, Harvey S. Price and A. G. Spooner, to study the situation.

Hard Hit by Price Cuts

Developments in the Turner Valley producing and marketing situation this year have seriously affected the operators. They were hard hit by a succession of price cuts which eventually brought prices down to $2.74 for crude naphtha and $2.50 for discolored naphtha. Peak prices were $3.95 and $3.50. Earlier this month the provincial government made effective its curtailment of gas production to 40 per cent of open flow as a gas conservation measure, and the operators were just adapting themselves to proration when Imperial Oil, Ltd., announced its cut in deliveries.

A number of projects have been suggested, including a co-operative organization for marketing production, either directly or through the establishment of a refining plant and sales organization. Representations will probably be made to

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Bank Building, Denver, and is making progress with its plans to drill in the C SE SE, Section 14-4n-58.

Larimer County

The Raddatz Corp.'s No. 1 Red Rock School House, NE cor., Section 20-4n-69, Berthoud Dome, was completed at a total depth of 1,000 feet. It tested 200,000 feet of gas with a pressure of 150 pounds in sand at 90-100 feet. Sand at 650-725 feet was shot without results. Same firm's No. 1 State, SW NW, Section 16-4-69, is drilling below 600 feet. This well will go to 3,200 feet, or more.

C. Leonard Smith's No. 1 State, SE cor., Section 36-12n-70, Sand Creek, after cementing the 3¾-inch at 685 feet to test a show in the Pennsylvanian below that depth, shot the hole and is cleaning out with results not yet determined.

Adams County

Nettie M. Slatt's No. 1 Hills Dome lease, SE cor., Section 27-3s-64, Watkins district, is drilling at 3,720 feet. Last week at 3,700 feet this hole was reported showing enough gas in the bailer after coming through 3,000 feet of carried water, to burn for about 5 minutes. This has increased until it now burns for about 15 minutes.

Arapahoe County

The MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, is bottomed at 5,835 feet and is running the 4¾-inch to bottom.

Lincoln County

The Eastern Colorado Oil Co.'s No. 1 State, SE cor. NW, Section 36-14s-57, Hugo district, is bottomed at 3,385 feet with the bailer in the hole and considerable cable on top of it. It is shut down to install new cable and then to fish. The hole is not showing any oil, but the gas is sufficiently strong to rise 7 to 8 feet above the floor of the derrick.

Jefferson County

The Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is shut down at 3,920 feet.

Park County

The South Park Oil & Gas Co.'s No. 1 Esche, SE cor. NW, Section 5-9s-76, Muleshoe Dome, is bottomed at 2,370 feet and preparing to run the 8¼-inch. The South Park Oil Co.'s No. 1 Milligan, Jefferson district, is drilling at 2,085 feet and carrying the 6⅝-inch at 2,084 feet.

Rio Blanco County

The Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE, Section 9-2s-96, Piceance Creek, has recovered tools and is drilling at 600 feet.

La Plata County

The McGarr Petroleum Corp.'s No. 1 Sanches, SE cor. NE, Section 27-33-12w, Red Mesa, which has been standing at 3,320 feet since last December, is resuming and preparing to shoot sand at 3,250-62 feet. Sand at 3,204-45 feet was shot with 150 quarts before closing down and considerable oil and gas have been standing in the hole. A 250-bbl. tank was filled in a bailing test and it probably will be a small well. The company is reported to have plans under way to erect a small skimming plant and market the gasoline in that district. Its No. 1 Pinon Mesa, NE cor., Section 34-33-12, for which location was made last fall, is moving in material. The Murchison Oil Co.'s No. 1 Doescher, SW cor. NW, Section 29-33-13w, is standardizing at 1,500 feet.

WYOMNG

Big Horn County

The Garland Dome in Big Horn County is being closely watched this week as two wells are nearing completion in the Madison lime. This structure has been producing gas for many years in the Pennsylvanian formation and last year the Ohio Oil Co. drilled a deep test to the Madison lime in its No. 1 Easton, SE cor., Section 33-56-97. This well was tested for an hour at a total depth of 4,420 feet, about 600 feet in the lime, and generally was rated as a 5,000-bbl. well at least with much greater possibilities if produced with gas lift. The oil is a heavy black grade and the discovery well was shut in on account of market conditions. The Portland Association, Inc., F. T. Griffith, trustee, is drilling less than one-half a mile to the north of No. 1 Easton, in its No. 1, SE NE SE, Section 29-56-97. The core taken at 3,893-3,900 feet showed oil saturation and considerable gas. The 8¼-inch was cemented at 3,893 feet and the hole is now bottomed at 4,050 feet and the core is showing increased saturation with plenty of gas. It was planned to drill it to 4,500 feet, but on account of the showing, it probably will stop at 4,300 feet. The Madison on the Garland Dome is the thickest producing formation so far found in Wyoming. The Utah Southern Oil Co.'s No. 3 Government, NE cor. SW, Section 29-56-97, less than a mile to the northwest, is bottomed at 4,100 feet and standing cemented and preparing to test. The core began showing oil saturation at 3,924 feet. The Ohio Oil Co.'s No. 1 mith, NE SE SE, Section 33-56-97, is standing at 1,492 feet with cave cemented.

Washakie County

The Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, is drilling at 6,590 feet. This depth was made in about four months. The first objective is the Frontier near the top of which it is believed to be drilling.

Park County

The Midwest Refining Co.'s No. 24 Rosenberg, NE SE NE, Section 26-58-98, Frannie Dome, is standing with the 13⅜-inch cemented at 1,565 feet in gray shale and Betonite.

Weston County

The Osage Field in Weston County, which is the most active spot in Wyoming, reported three good completions this week. The Chadron-Osage Oil Co.'s No. 13, NE cor. SW, Section 14-46-64, made 500 bbls. natural the first 24 hours from sand at 1,801-16 feet, and an offset on the north in the Lambie Oil Co.'s No. 7 Julius Bock, SE cor. NW, Section 14-46-64, flowed 100 bbls. initial from sand at 1,778-88 feet. The Wytex Oil Co.'s No. 6 Logan McCullough, CWL SW NE, Section 23-46-64, in the new southwest extension where some good producers have been brought in recently, found the sand at 1,771-93 feet and after being shot with 40 quarts and cleaned it flowed 150 bbls. in 24 hours.

Bradley-Manewal's No. 10, CEL SE NW, Section 20-46-63, is drilling at 200 feet, and the Riggs Oil Co.'s No. 1, SE cor. NE, Section 16-46-64, is ready to spud. Hugh Updike's No. 1, NW cor., Section 26-46-64, has rig on location, and his No. 2, CNL SE NW, Section 23-46-64, is drilling at 1,500 feet.

Natrona County

A test of the Muddy sand in the Midwest Refining Co.'s No. 11 Middy, C NE NE, Section 23-35-79, Midway Dome, has been delayed by a fishing job. While drilling out bridge at 5,920-35 feet, above the sand, the gas broke through and blew the tools up the hole. Fishing is in progress after filling the hole with fresh water to hold down the pressure.

The Cuyler Oil Co.'s No. 1 Heery, SW SE SE, Section 23-36-85, Powder River, is drilling in sand at 2,286 feet.

Niobrara County

The Continental Oil Co.'s No. 3 Rohlff, SE SW SW, Section 32-36-65, Lance Creek, deepened to the Lakota to increase gas production, was completed at 3,229 feet as a gas well, but has not yet been gauged. The Indian Petroleum Co.'s No. 1, NE NW NE, Section 7-35-65, is drilling at 4,000 feet.

Carbon County

The Prairie Oil & Gas Co.'s No. 1, near the center SE SW, Section 29-27-89, a rotary test, has rig up and is digging mud sump. The Noble Drilling Co. has the contract which calls for a 7,500-foot hole. This depth will cut all formations above the Chugwater, including the Dakotas and the Sundance. The footage of the location is 478 feet from the south line and 2,057 feet from the west line.

The Producers & Refiners Corp.'s No. 1, SW cor., Section 19-20-83, Overland Dome, is coring at 1,172 feet, and the Midwest Refining Co.'s No. 27 Union Pacific, NW SE SE, Section 11-20-81, Elk Mountain, is bottomed at 3,140 feet and refilled 6 feet to straighten hole.

Laramie County

The Prairie Oil & Gas Co.'s No. 1 Warren, SE NE SE, Section 22-13-68, south-

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Eastern Fields Report 16 Completions

Three Small Oil Wells in Ohio and 13 Gassers in West Virginia Make Up Week's List. Low Prices for Crude Result in Apathy

By Staff Correspondent

PITTSBURGH, Pa., July 27.—During the last week in the lower Eastern fields 16 wells were completed and 1 dry hole was reported. This is regarded as fair progress in fields suffering from the general apathy induced by low prices of Pennsylvania grade crude and poor natural gas demand.

OHIO

In Southeast Ohio two oil producers were completed, having a total initial production of only 4 bbls. A test of the Hopewell Fuel Gas Co. on the Jasper N. Quigley farm in Lot 23, Washington Township, Tuscarawas County, was drilled to a depth of 3,380 feet in the Niagara lime sand and it is estimated as good for 150,000 feet a day.

In Hocking County, R. W. Porter and others drilled a second well on the Lick Run Coal & Clay Co.'s No. 2 lease in the NE, Section 4, Starr Township. It is a Clinton sand well at a depth of 3,478 feet and produced only 1 bbl. the first 24 hours naturally. After being shot the well made 2 bbls. the second day. In the west side of Section 17, Aurelius Township, Washington County, the Massillon Macksburg Oil Co. drilled a test on the Adams and Blakeslee farm to a depth of 825 feet in the Macksburg 800-foot sand. After being shot it produced 2 bbls. the first day.

Drilling in Ohio

The deep test of the Benedum & Trees interest on the Wayne Coal Co. tract in Island Creek Township, Section 26, Jefferson County, has been halted at 5,300 feet with a difficult fishing job on hand. This well was intended to reach 6,000 feet or deeper. In Section 7 of the same township, the Sanders Oil Co. has reached a depth of 700 feet in a test on the Moreland heirs' farm.

Activity in Muskingum County remains fair. In Washington Township, the test of the Ohio Fuel Gas Co. on the Martha Myers farm, in Section 12, has reached 3,400 feet. In Falls Township, the Atha Oil Co. is down to 3,200 feet in No. 5 on the W. H. Atha farm and has prepared a location for another well. In Hopewell Township, M. F. Whitehill has a rig standing for a fifth well on the Boyer farm, Section 6. In Section 3, Clay Township, William Cline and others have abandoned their rig and location for a test on the Howard H. Doyle farm.

In Perry County, the Hopewell Fuel & Gas Co. is down to the 1,000-foot level in a test on the Frank Sweeney farm in Section 15, Reading Township. In Section 5 of the same township, Bauman and others have abandoned their location for a well on the Elmer Vansickle farm. In Licking County, the Wehrle Co. ran into trouble and a fishing job in its test on the J. A. and A. J. Loughman and O. H. Hartman lease. The rig was skidded and a new hole started which has now reached 350 feet. This location is in Section 14, Hopewell Township. In Fallsburg Township, J. W. Rutledge and others have moved in the timbers for a rig for their No. 4 on the William O. Booth farm, Section 14.

In Knox County, Kundtz, Hulse, Inc., and Bell are down to 500 feet in a test in Section 22, Union Township, on the J. H. Colopy farm. William E. Gerber and others have reached about the same level in a second test on the W. W. Marsh farm, Section 21, Franklin Township, Monroe County.

WEST VIRGINIA

Once again, a week's operations ended without an oil producer being completed in West Virginia. Thirteen gas wells, several in the neighborhood of a half million feet a day, and one dry hole was the total of the last week.

Boone County returned to activity with three completions. In Washington district the Pond Fork Oil & Gas Co. completed a fair gas well in its No. 11 on the Cole & Crane Real Estate Co. lease. It was a Berea sand well at a depth of 3,041 feet. In the same district the Cameron Oil & Gas Co. drilled a test on the E. T. Price farm and has a small gas well. In Sherman district the Pure Oil Co. continued its operations on the Federal Coal Co. tract with the completion of its No. 52. It is a fair gasser showing a little in excess of a half million feet a day from the Weir sand at a depth of 3,141 feet.

In Doddridge County, J. H. Pants completed No. 11 on the Zed Underwood farm at 3,064 feet. The Big Injun sand was found in this location in McClellan district at 2,175 feet and the hole was extended to 2,395 feet with a show of oil and gas at 2,256 feet. A stray sand was found at 2,887 to 2,915 feet with gas showing from 2,900 to 2,910 feet. The Gordon sand was between 2,923 and 2,928 feet with a show of gas in the last foot only.

Three gassers were completed in Calhoun County, one very light. In Sherman district, L. H. Bickel drilled his No. 12 on the S. T. Stump farm deeper from the Salt sand, in which it was a small oil producer, to the Injun sand, which is producing about 400,000 feet of gas a day. In the same district F. F. McIntosh completed his test on the Jarvis Aldrich farm in the Injun sand at 2,190 feet. It will make a small gas well. In Lee district the Rocksdale Oil & Gas Co. completed a test on the Roy Starcher farm at 2,143 feet in the Injun sand. It is a light gas well.

Gilmer County reported three new gas wells. The largest, and probably the largest for the week, was the test of Paul Weekley and others on the Belinda Fetty farm in Center district. It was completed in the Salt sand at 780 feet and is making half a million feet a day. A slightly smaller well was the No. 3 of McCall and others on the John R. Ralston farm in DeKalb district. It is an Injun sand well at 1,921 feet and appears to be a fair one. In Center district the Pittsburgh and West Virginia Natural Gas Co. drilled its old No. 1 on the W. E. Snodgrass farm deeper to 2,120 feet in the Injun sand. It is a light gasser from that formation.

In Union district, Lincoln County, the Woodyal Gas Co. completed a second test on the James Walker Adkins farm in the Big Lime formation at 1,930 feet. It is a fair gas well which is at present shut in in the casing. In Sheridan district of the same county, the Empire State Gas Co. drilled a second well on the B. L. Butcher farm also in the Big Lime but to 1,355 feet. It is estimated as a small gas well.

In Pleasants County Albert Neely & Co. drilled a third well on the H. M. Brammer farm in Union district. It is showing for a very light well from the Keener sand and the gas probably will be used for domestic purposes only. The only dry hole for the week was found in the No. 8 of the Montgomery Gas Co. on the New River Colliery Co. tract in Kanawha district, Fayette County. It was drilled to a total depth of 2,902 feet and through the Berea sand.

In Grant district, Ritchie County, Edwin D. C. Lynch is down to 1,900

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California's Hope Lies in Stabilization

Unless Decided Improvement Is Effected Within Next Two Months the State's Oil Men See Prospects of a Hard Winter

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., July 27.—Unless there is a decided improvement within the next 60 days, it looks as though the oil industry on the Pacific Coast is in for a tough winter. Existing conditions, while not as acute as those which confronted oil producers a few months ago, are nevertheless unfavorable. The production situation has shown improvement but marketing conditions are unsettled owing to the inability of refiners to stabilize refined oil prices. This has created a condition of uncertainty as to the ability of marketers to prevent another general breakdown in the price structure later this year.

There are only two months left in which to take advantage of the increased summer travel. Peak consumption on the Pacific Coast is reached in July, August and September, and, while the seasonal change on the Pacific slope is not as pronounced as in other localities, annual vacations and the call of the open road are reflected in a higher consumption of motor fuel during these three months. Unusually warm weather has prevailed during the last 60 days and the outlook is favorable for at least two more months of warm weather. Gasoline consumption has increased accordingly and probably will continue at a high rate until the end of September.

If refiners on the Pacific Coast are unable to dispose of gasoline at a fair profit during the period of peak consumption it is doubtful whether they will be able to effect stabilization when the demand decreases. This is especially important as rainfall charts indicate a wet winter in this area, in which event gasoline consumption will be below normal. There are constructive movements under way, all of which would improve the technical position of the industry if brought to a successful conclusion. The projected organization of independent refiners which already has progressed beyond the formative stage will be a factor of no little consequence in the concerted attempt to effect stabilization on the Pacific Coast. The two organizations of independent refiners will reduce the amount of distress gasoline which has been such a disturbing factor in the past. Members of these independent organizations also will be in a position to obtain a sufficient amount of crude oil to meet normal requirements.

Another Movement Under Way

Another constructive movement under way contemplates the organization of an operating committee to handle the production activities of California producers who are at present in receivership. Approximately 100 creditors, principally representatives of oil well supply houses, held a meeting early this week in the assembly rooms of the California Oil and Gas Association to consider a proposed plan for unit operation of the Playa Del Rey Field. A committee, consisting of Lester Keim of the Oil Well Supply Co., Harry Hillman of Hillman & Kelly, and Jack Crawford of the Crawford Supply Co. was appointed to submit the proposal to a meeting of the receivers in charge of oil wells in the Playa Del Rey Field. The creditors, who are endeavoring to collect for more than $5,000,000 worth of supplies and equipment from companies in receivership, have suggested to the receivers that an executive board be appointed to work out a unit plan of operation at Playa Del Rey. By reducing the overhead and operating expenses, creditors, shareholders in companies in receivership, holders of participating units, lessors and other interested parties will be enabled to recover some of their investments. This movement is particularly timely because the failure of receivers to curtail production is seriously jeopardizing curtailment activities especially in the Playa Del Rey Field.

A concerted movement has been started on the Pacific Coast to familiarize the general public with the seriousness of the situation confronting the California oil industry. This is particularly important because of the possibility that Governor Rolph may call a special election in connection with the Sharkey Bill, against which referendum petitions were recently circulated. If this bill is submitted to a popular vote it is expected to be upheld, provided that it is given sufficient favorable publicity. Assessor E. W. Hopkins of Los Angeles County recently issued a statement in which he said: "The primary desire of every assessor is to see a status of stabilized values throughout the different industries under his jurisdiction. If chaotic conditions exist in a given industry, as it is certain they do in the oil industry today, the assessed values are seriously affected and if governmental expenditures remain the same an increased tax rate is the inevitable consequence. Assessed values of mineral-bearing lands are subject to a heavy write-down each year as a natural result of the extraction of the mineral. Assuming that Los Angeles County has reached its peak in oil production, we must expect to lose at least $15,000,000 yearly of assessed value from this cause alone. But, if in addition to the loss due to normal decline in production, the stable price structure of the oil is destroyed it may easily result in the striking from the tax rolls of an additional $40,000,000 of assessed values of mining rights. Such a condition would lessen the value of the personal property needed to produce this oil and would mean the elimination of a large part of the solvent credits arising from oil transactions. Likewise, the huge sums invested in refinery equipment and the millions of barrels of crude and refined oil in storage would depreciate heavily in value. Summing up, it would be quite possible, if the oil industry does not right itself, for Los Angeles County to be faced with a loss of $100,000,000 of assessed value from the oil industry when the tax rolls are written for 1932. Assuming an average tax rate of $3.50 per $100, the resulting loss in tax revenues would be $3,500,000."

Reduce Production

Operators in the Kettleman Hills Field of Kings County effected a substantial reduction in production last week in conformity with the agreement to reduce the output of that field to 60,000 bbls. per day for the rest of 1931. There are still a few minor details to work out but the entire plan should become effective within the next few days. Tentative plans subject to minor adjustments permit the Kettleman North Dome Association and the Standard Oil Co. to produce 22,500 bbls. per day each. The remaining 15,000 bbls. of allowable production has been allocated to other members producing in this field at the present time. Under this schedule the Union and Superior will be allowed to produce 4,000 bbls. per day each, Petroleum Securities 3,000 bbls., Associated 2,300 bbls., and the Shell 1,700 bbls. The 15,000 bbls. allotted to producers operating on fee property may be subsequently readjusted as some little difference of opinion exists as to the respective allotments. The allowable for each company was recommended by a special allocation committee consisting of Paul N. Boggs of the Union Oil Co., William Keck of the Superior Oil Co., William Reinhardt of the Kettleman North Dome Association, W. Clarke of the Standard, J. R. Pemberton of the Petroleum Securities, J. U. Stair of the Shell and the Joseph Jensen of the Associated Oil Co.

The California Supreme Court has denied an appeal of the city of Los Angeles from a Superior Court judgment enjoining that municipality from leasing Venice tidelands for oil drilling purposes. This decision upholds an opinion of the District Court of Appeal, which held that the execution of the proposed lease would be in violation of the trusts upon which the State ceded the land to the city. Lewis Stone, a film actor and owner of property within the Venice city limits, obtained the injunction from which the city carried its appeal. The property involved was included in an area 80,000 feet long and of varying width. The Los Angeles' department of playground and recreation proposed to lease the property for a period of 25 years. The land in question was granted to the city of Venice by the state legislature in 1917 and became a part of Los Angeles when the two cities were consolidated in November, 1925. The property affected by the decision of the state Supreme Court adjoins productive acreage in the Playa Del Rey Field. A number of producing wells have been drilled just inside the tide line and it was proposed to construct a number of piers out into the ocean, such as has been done at Summerland, Elwood and Rincon.

Kettleman Hills

Two new wells were finished in the prolific Kettleman Hills Field during the past week, one of which came in flowing at the rate of 29,000 bbls. per day. This was the Standard Oil Co.'s No. 34-29 J, an offset to the Union Oil Co.'s Amerada King and No. 1 Huffman of the Superior Oil Co. The Standard did not permit its new well to actually produce to its rated capacity as it was beaned down to 21,500 bbls. during the initial 24-hour test. It was subsequently beaned back to 4,000 bbls. per day, at which rate it has been holding fairly steady.

This well, which was carried down to 8,472 feet and finished with a 9⅝-inch water string landed and cemented at 7,107 feet, produced 50,000,000 feet of natural gas during the first 24-hour test. The master gate was opened on the morning of July 20, at which time the well blew off a short gas head accompanied bya drop in casing pressure to 800 pounds. The well was bailed all day and blew in late in the evening under a casing pressure of 950 pounds and was permitted to flow to a blow-off box through three 3⅞-inch beans until noon the following day, at which time the flow was turned to traps. The casing pressure immediately rose to 1,200 pounds. The following evening one of the beans was closed and the traps were experiencing considerable difficulty in handling production. A short time later the second bean was closed and the well officially completed. It has subsequently been pinched back to 4,000 bbls. and will be kept at this figure in conformity with the new curtailment agreement at Kettleman Hills.

In addition to completing this new well, the Standard pinched back well No. 85-20 J from 9,250 bbls. to 4,000 bbls. daily and restricted the flow in No. 47-35 J from 8,005 bbls. to 3,800 bbls. per day. The Standard has five wells producing in the North Dome and three completely shut in. The Kettleman North Dome Association has five wells producing, one shut in and another, No. 1-12 P, being rigged up to kill. The Associated, Shell and Union each has one well producing, while the Petroleum Securities and Superior have two each. Including the two new wells finished this week, Kettleman Hills has a conservative rated potential daily production of 200,000 bbls. and this is expected to be increased still further by the completion of the Associated's No. 2 Whepley, the Standard's No. 38-35 J and possibly by the North American's No. 1 Blauvelt some time during the next 30 days. Additional completions of wells now under way will increase the potential still

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	.....	.....	987,353	2,152,322
Gasoline	364,646	52,092	233,360	33,336	8,286,939	10,982,317
Kerosene	68,480	9,783	.....	.....	157,539	.....
Coastwise—						
Crude oil	617,421	88,203	331,222	47,317	12,046,993	3,569,554
Fuel oil	155,119	36,874	216,683	30,955	7,426,662	9,473,091
Diesel and gas oil	30,996	5,714	6,413	916	969,444	1,045,563
Gasoline	366,538	52,362	105,714	15,102	7,694,313	6,650,219
Kerosene	5,150	736	.....	.....	201,854	102,604
Naphtha distillate	.....	.....	.....	.....	4,952	.....
Exports—						
Crude oil	70,239	10,034	223,314	31,902	4,052,644	3,681,309
Fuel oil	221,617	31,645	101,115	14,445	8,074,438	10,442,949
Diesel and gas oil	5,935	334	63,850	9,121	2,155,294	2,617,681
Gasoline	147,184	21,026	311,941	44,563	5,162,498	9,058,890
Kerosene	168,000	24,000	8,390	1,213	977,700	2,112,640
Lubricants	.....	.....	17,375	2,482	36,353	16,082

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	135,960
Gasoline	.....	.....	.....	.....	405,469	782,367
Lubricants	.....	.....	.....	.....	21,990	16,776
Coastwise—						
Fuel oil	24,116	3,445	46,990	6,713	2,278,550	2,056,637
Diesel and gas oil	.....	.....	.....	.....	195,112	169,165
Gasoline	119,422	15,775	171,303	24,458	3,072,741	2,243,595
Kerosene	7,374	1,053	18,980	2,711	174,344	142,044
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	.....	.....	.....	.....	107,736	3,075
Fuel oil	77,402	11,057	.....	.....	798,302	529,110
Diesel and gas oil	.....	.....	.....	.....	294,708	239,054
Gasoline	91,907	13,130	70,118	10,017	2,418,822	2,283,964
Kerosene	.....	.....	96,970	13,710	535,972	380,083
Lubricants	.....	.....	.....	.....	.....	18,672
Naphtha distillate	.....	.....	.....	.....	26,100	.....

further during the course of the next few months.

The second well finished this week was the Kettleman North Dome Association's No. 8-6 Q, located on property originally held by the George F. Getty Co. in Section 6-22-18. This new well, which produced 8,830 bbls. of clean 36.1 gravity oil and 13,000,000 feet of natural gas per day, was finished at 8,026 feet. The top of the Temblor was encountered at 6,710 feet and the well finished with a combination string cemented through perforations at 7,311 feet.

Drilling Operations Suspended

The Kettleman North Dome Association, which erected a new rig in Section 20-21-17 a week or 10 days ago, has decided to temporarily postpone drilling operations in order to reduce capital expenditures to a minimum. This project, which is located approximately 3,000 feet northwest of the Superior's No. 1 Huffman, is located just ouside the so-called red line which incloses the generally accepted limits of production. It is well within the blue line inclosing the maximum outer limits of production and would have been the most westerly well drilled in the Kettleman Hills Field up to the present time. The new tank farm of the Kettleman North Dome Association in Section 31-21-18 has just been finished and is expected to receive its first run of crude oil within the next few days. This farm, comprising four 35,000-bbl. steel tanks, was constructed primarily to facilitate the distribution of crude oil produced on properties of the association in the North Dome. The tanks are so situated that oil may be gravitated from lease tanks, thus eliminating the necessity of installing pumping equipment.

Officials of the Kettleman North Dome Association are of the opinion that capital investments and operating expenses incident to the organization of the association and subsequent drilling operations will be liquidated at the end of the first year, provided of course that a satisfactory crude price structure prevails. The Kettleman North Dome Association has under its control 10,800 acres in the North Dome, which with its wells, equipment, pipe lines and tankage has been set up on the books at the nominal value of $6,000,000, which represents the combined investments of its component members.

The General Petroleum, a subsidiary of the Standard Oil Co. of New York, is the largest unit holder in the association. This company has a 23.15 per cent interest in the Kettleman North Dome Association, followed by the Continental and Milham Exploration Co. with 18.3 per cent each. The Pacific Western's interest approximates 13.3 per cent, George F. Getty, Inc., 7.4 per cent, Shell 4.8 per cent, Belmont Investment Co. 3.1 per cent, Associated 2.3 per cent, Pioneer Kettleman Co. 1.9 per cent, Petroleum Securities 1.8 per cent, Standard Oil Co. of California 1.8 per cent, Lincoln Drilling Co. 1.4 per cent, L. G. Helm and S. L. Gillan 1.1 per cent and Amerada Petroleum Co. 0.9 per cent.

In the Middle Dome of Kettleman Hills the Petroleum Securities landed and cemented a string of casing in No. 1 Burbank, a deep test being drilled in Section 30-23-19. It is not believed that the Temblor has been encountered in this well up to the present time as the formation at the bottom of the hole, 7,330 feet, was the usual characteristic brown shale showing a little oil in fractures. Correlation indicates the possibility, however, that the Temblor oil sand will be picked up within a short time after drilling has been resumed. The outcome of work on this well is being watched with considerable interest because if commercial production is secured it will mean the addition of another new oil field in California. Several months ago a committee was appointed to devise ways and means of inaugurating unit development in the Middle Dome. This committee consisted of William Berg of the Standard, Roy Collom of the Continental Oil Co., Roy Ferguson of the Bolsa Chica, Floyd Bryant of the Standard, Rolph McCollom of the Pacific Western Oil Co. and J. R. Pemberton of the Petroleum Securities. As in the North Dome at Kettleman Hills, the United States Government and the Standard Oil Co. own the greater part of the possible productive acreage in the Middle Dome.

Huntington Beach

W. E. McCaslin focused the attention of operators on the Huntington Beach Field of Los Angeles Basin during the last week when a production test was started on No. 17 Transport, a deep test in the town lot area. The test was not conclusive due to the development of mechanical trouble. This well, bottomed at 8,365 feet, was passed for production early in the week and swabbing was started on July 21. The fluid was lowered to 4,850 feet after several hours of swabbing and work was temporarily discontinued at 12 o'clock midnight July 21. The fluid rose 850 feet during the night as the swab encountered fluid at 4,000 feet at 6 a. m. the following morning.

On the second run the swab was lost and the importance of this test will not be determined until the fish is recovered and work resumed. Oil brought to the surface during the course of swabbing operations tested 30.6° in gravity, a little lower than generally anticipated. The drilling mud was badly gas cut but the well failed to reveal sufficient kick to result in a natural flow. It might be possible of course that the hydrostatic pressure has prevented gas from entering the hole, especially in view of the fact that heavily fortified drilling mud has been employed during the past few weeks. There is considerable oil in evidence, and, while the outlook for a natural flow is not any too promising, subsequent developments may change the aspect of the situation.

It is generally agreed that McCaslin at least has the makings of a good pumper. The Superior Oil Co., which was responsible for the initiation of deep exploration work in the Huntington Beach Field, is rotating ahead in No. 7-2 Gillette at 7,550 feet, and, judging by work in the field, plans to resume drilling in both No. 1 Eberle and No. 1 Fee. The Superior's chances of production are more favorable than McCaslin's from a geological standpoint and hence will be watched with great interest. McCaslin's No. 17 Transport passed through a faulted zone at approximately 5,000 feet where core samples showed the formation tilted almost vertically.

Lost Hills Belridge

The Continental Oil Co. has resumed drilling in No. 2 Result in the south end of the North Belridge Field of Kern County following a preliminary production test conducted early this week at 5,253 feet. The liner has been pulled and the well will be deepened in an effort to open up a little more formation. The Standard's No. 2 McPhail was wet on a production test at 5,671 feet and work is under way to determine just where water is entering the hole. The Belridge Oil Co.'s No. 8-35, a recent completion, has been holding up with clocklike regularity and no immediate substantial decline is anticipated.

This company is making preparations to finish No. 64-27 and this well should be given a production test within the next few weeks. In the Lost Hills Field, the George F. Getty Co. has temporarily suspended drilling operations on No. 1-A Lincoln Drilling in Section 12-26-20 pending the outcome of work on the General Petroleum's well No. 1,301 in Section 13-26-20. The Universal Consolidated, a subsidiary of the Richfield, suspended drilling operations a few weeks ago on No. 49, a deep test being drilled in Section 32-26-21, and no further work is contemplated for the present.

The Shell recompleted No. 1 Porter Day, the discovery well in the Weed Patch, or Mountain View Field of Kern County, but it was only good for 75 bbls. of 23.2 gravity oil per day from 5,910 feet, the hole having been plugged back from 8,419 feet. This well revealed the existence of two productive horizons in the Mountain View Field, and, while it revealed a potentiality of 2,500 bbls. per day on a preliminary production test from the second zone during the course of work, this zone has apparently been mudded off. The Standard has not yet concluded the production test which it is

(Continued on Page 138)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	6,510	suspended
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	suspended
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-16	6,390	cemented
Dwyer & Becker, No. 1 Compton, Los Angeles Co.	17- 3-13	4,520	suspended
Allison Synd., No. 1 Baldwin, Los Angeles Co.	8- 2-14	5,110	suspended
Cal. Oil Fields Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,560	suspended
Carniel Oil Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,114	suspended
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	4,665	suspended
Thorpe Pet. Co., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	3,840	suspended
Alondra Oil Co., No. 1 Hawthorne, Los Angeles Co.	33- 3-14	rig	suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Pacific Shore Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
York & Smullin, No. 1 Watson, Los Angeles Co.	29- 4-13	3,790	plugged back
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,012	suspended
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	....	location
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,300	suspended
Arden Oil Co., No. 1 Puente, Los Angeles Co.	15- 2-10	3,325	suspended
D. & B. Oil Co., No. 1 Puente, Los Angeles Co.	3- 2-10	4,620	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	1,680	br. sh. drilling
Marcel Pet., No. 1 Puente, Los Angeles Co.	31- 2- 8	3,100	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,870	suspended
Bilinn & Gray, No. 1 Montebello, Los Angeles Co.	4- 2-11	4,344	cleaning out
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,842	suspended
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	redrilling
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-12	1,603	sd. sh. drilling
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	2,280	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	753	redrilling
Caballero Estates, No. 1 Calabasas, Los Angeles Co.	23- 1-16	902	cleaning out
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,960	suspended
West Coast Waste Oil, No. 1 Van Nuys, Los Angeles Co.	14- 1-16	mtl.	building rig
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	790	suspended
Standard, No. 1 Newport, Orange Co.	26- 6-10	5,470	hd. sd. drilling
Western Gulf, No. 1 Santa Ana, Orange Co.	12- 3- 8	3,267	suspended
Gleck Oil Co., No. 1 Sunset Beach, Orange Co.	20- 5-11	5,954	br. sh. drilling
Beck, P. A., No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Duncan, N. L., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,125	sd. sh. drilling
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	3,392	suspended
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	374	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	5,120	recemented
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 2	1,010	sd. sh. drilling
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 3	5,250	cleaning out

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-35	6,800	hd. sd. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-35	3,114	sd. sh. drilling
Smith, W. E., No. 1 Lompoc, Santa Barbara Co.	18- 7-34	100	suspended
Zaca Oil Co., No. 1 Los Olivas, Santa Barbara Co.	20- 7-31	rig	suspended
Ohio Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	mtl.	building rig
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	gas—shut in
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	5,860	Sespe form.
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,052	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	2,051	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S., Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	2,010	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	4,191	rigging up
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 4-29	2,099	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	5,134	cleaning out
Strickland & Tippet, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	3,925	sd. sh. drilling
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	redrilling
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 6-27	2,345	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C. C. M. O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	10,030	plugging back
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	5,815	sd. sh. drilling
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	....	location
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	2,591	suspended
Superior Oil Co., No. 1 Sespe, Ventura Co.	14- 4-21	7,688	hd. sd. drilling
San Pedro Oil Co., No. 2 Sespe, Ventura Co.	13- 4-21	3,410	cleaning out
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	4,910	suspended
Mex Cal Oil Co., No. 1 Conejo, Ventura Co.	12- 1-20	240	suspended
Hansen Pet., No. 1 Conejo, Ventura Co.	24- 1-20	100	suspended
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	recemented
Kent & McDonald, No. 1 Temblor Hills, Kern Co.	3-32-22	1,894	sd. sh. drilling
Calif. Oil Producers, No. 1 McKittrick, Kern Co.	30-30-22	3,712	hd. sd. drilling
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,367	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	5,269	reaming
The Texas Company, No. 1 Belridge, Kern Co.	22-27-20	5,045	suspended
Standard, No. 2 Beiridge, Kern Co.	31-27-20	5,685	testing
Ohio Oil Co., No. 1 Belridge, Kern Co.	36-27-20	5,980	suspended
Continental, No. 1 Beiridge, Kern Co.	36-27-20	5,253	to deepen
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	recemented
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	3,355	suspended
Wicker, Sy, No. 1 Arvin, Kern Co.	12-30-28	1,350	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	pumping test
Shell, No. 2 Weed Patch, Kern Co.	29-30-29	6,410	suspended
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	plugged back
Osborn, Colter, No. 2 Weed Patch, Kern Co.	15-30-29	1,990	sd. sh. drilling
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	6,150	suspended
Mohawk Oil Co., No. 2 Weed Patch, Kern Co.	4-31-29	rig	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,600	to replug
Hannah, Tom, No. 1 Devils Den, Kern Co.	25-25-18	2,925	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	21-26-18	812	hd. sd. drilling
Temblor Dev. Co., No. 1 Blackwell Corner, Kern Co.	14-26-19	1,030	suspended
E. J. Miley, No. 1 Blackwell Corner, Kern Co.	17-26-19	rig	suspended
United Kern Pet., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	511	redrilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	315	sd. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	5,840	hd. sd. drilling
Panorama Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-31-21	4,019	suspended
Tray El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,030	suspended
Paso Robles Synd., No. 1 Paso Robles, San Luis Obispo Co.	34-27-11	4,040	hd. sd. drilling
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,615	recemented
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	1,250	cleaning out
Jergins, A. T., No. 1 Arroyo Grande, San Luis Obispo Co.	6-32-13	1,781	sd. sh. drilling
Brown, W. F., well No. 1, Monterey Co.	13-23-14	1,340	redrilling
Irma Investment Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well—idle
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	rig	suspended
Kettleman Lakeview, No. 1-A Dudley Ridge, Kings Co.	20-23-20	2,040	cleaning out
Purman, T. H., No. 1 Reef Ridge, Kings Co.	36-23-17	4,050	hl. sh. drilling
Seymour, L. W., No. 1 Avenal, Kings Co.	10-22-16	1,148	cleaning out
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	6,975	sd. sh. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	2,850	cleaning out
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	3,180	cleaning out
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Ellis & Stanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,075	sd. sh. drilling
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	930	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,170	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,520	redrilling
Sargent Oil Co., No. 1 Sargent, Santa Clara Co.	1-12- 3	rig	suspended

EXTREME *Simplicity*

MINIMUM PARTS

In design and construction the Model "M" Rock Bit is a model of simplicity—quite different from the usual types. Parts have been reduced to an absolute minimum. The complete bit consists of only two major parts, the rock bit head and the 3-point reamer.

This extreme simplicity in design and construction is directly reflected in the performance of the bit—easier handling, quicker, easier changing of cones, less difficulties encountered in the hole, less hazards of breakage and fishing jobs, lower cost of operation and maintenance.

The model "M" Rock Bit embodies many outstanding advantages important to drillers as well as to operators. All are described and illustrated in Bulletin No. 8-A, a copy of which will be sent you on request.

GLOBE OIL TOOLS CO.

LOS NIETOS, CALIFORNIA.

Successors to
H. C. Smith Manufacturing Co., Inc.
Wieman-Kammerer-Wright Co., Inc.
National Tool & Metals, Inc.

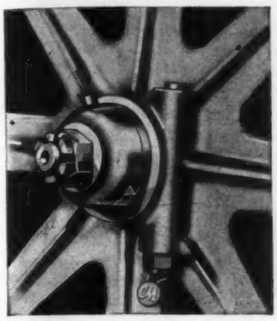
Branches:
Ventura, Calif. Longview, Texas
Bakersfield, Calif. Oklahoma City, Okla.
Kettleman Hills, Calif.

MODEL "M" ROCK BIT

Oil Industry Equipment and Supplies

SAFETY DEVICE WARNS AGAINST OVERLOADING

An automatic safety governor designed to protect workmen, materials and machines is a feature of a new hoist, called the Al-Lite, announced by the Chisholm-Moore Hoist Corp., Tonawanda, N. Y.



This overload governor warns against hoisting in excess of 50 per cent overload.

The hoist is said to represent a revolutionary step in design, being a third lighter than ordinary hoists of the same capacity. One man can handle it, thus eliminating the danger of having two or three men on a ladder or scaffolding. Other features are a bright red load hook, proof-tested Inswell chain, adjustable load brake, grease bath lubrication, tilting top hook, ball bearings at most important points and dust-proof, oil-tight housing.

WELDELLS PRODUCED BY FORGING AND FUSION

Weldells, which are welding elbows produced by the Locomotive Terminal Improvement Co., Chicago, through forging and fusion, have the same radius and center-to-face measurements as standard radius fittings.

Two pieces of homogeneous metal plates are cut to proper size and forged to exact radius and dimensions. They then are fused together with a reinforcing rib along both the outer and inner radius of curvature. All Weldells are forged with a tangent on each end and are therefore interchangeable with standard fittings in the revision of existing piping. They are forged from plate of a cross section which will give the same uniform wall thickness as the pipe in the line where they are to be used. The method of forming is said to assure a uniform internal diameter and a constant cross section free from distortion and without folding.

Weldells may be fabricated of the same material as the pipe line. They are fabricated of standard section or wall thickness to conform to the standard weight of pipe of equivalent diameter. They are also made of No. 10 gauge material for use with standard light-weight spiral-welded or spiral-riveted pipe.

Unless otherwise specified, all Weldells are furnished with both ends beveled 45 degrees for welding. They may be welded directly into a pipe line and thus eliminate all fittings and threads. Flanges may be welded on each end, thus making a flanged fitting of standard dimensions which may be inserted in any pipe line to replace any other standard flanged fitting.

Weldells are carried in stock in all standard pipe sizes. This includes standard-weight as well as light-weight sections in all of the following material: Byers genuine wrought iron, Toncan or Armco iron, copper-bearing steel and wrought steel.

NOTES ABOUT TRADE LITERATURE

A new catalog of 88 pages announced by the Taylor Forge & Pipe Works, Chicago, describes Taylor forge welded pipe and contains information of value to engineers interested in large-diameter piping.

Steel-backed babbitt-lined bearings are the subject of a new bulletin issued by the Wagner Electric Corp., of St. Louis, Mo.

The Pacific Pipe & Supply Co.'s latest bulletin, No. O-2, has been published with complete and definite description and prices of the Papico natural gas odorization system. Copies may be obtained from the company, at 1002 Santa Fe Avenue, Los Angeles, Calif.

A broadside issued by the Dearborn Chemical Co., Chicago, Los Angeles and New York, tells of the protection afforded buried pipe lines by No-ox-id Master Coat.

Slush-pump accessories, including liners and valves, are the subject of a 4-page bulletin being mailed by Wilson-Snyder, Pittsburgh, Pa.

The current number of Heat Engineering, published by the Foster Wheeler Corp., New York, contains several illustrated articles of interest to oil men.

A book which gives complete information on all standard types of sling chains is announced by the American Chain Co., Inc., Bridgeport, Conn. In addition to specification tables it gives definitions, cautions and instructions governing the purchase and use of chain.

Bulletin WT12, issued by the Bonney Forge & Tool Works, Allentown, Pa., is devoted to Bonney drop-forged weldolets and thredolets for making welded tee junctions.

"Bossing the B. T. U." is the title of a bulletin issued by the Sivyer Steel Casting Co., Chicago.

A 36-page catalog of unusual attractiveness is that of the Eagle-Picher Lead Co., Insulation Division, Joplin, Mo. It gives an interesting picture of Eagle heat insulation products which are quickly available and adapted for all types of insulation.

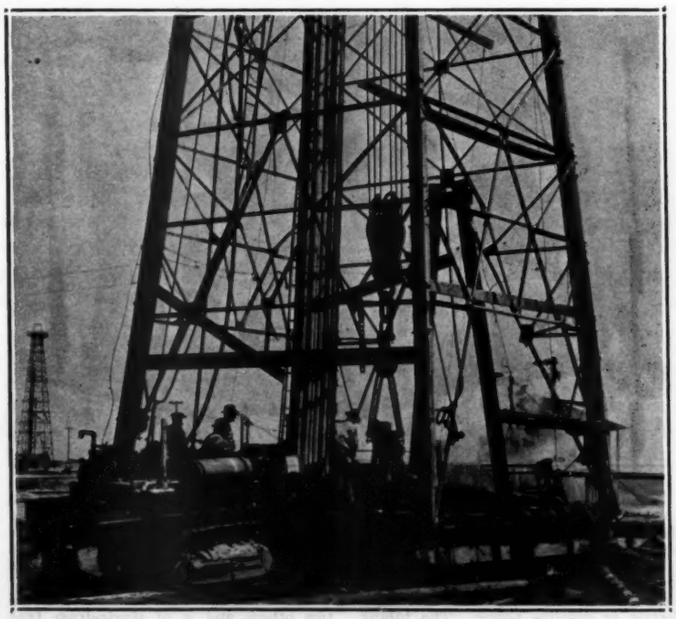
"Special Process Equipment" is the title of a new bulletin issued by the Babcock & Wilcox Co., 85 Liberty Street, New York. It describes the fabrication of riveted and welded pressure vessels, tubular equipment, penstock piping, bends and forgings.

The C. J. Tagliabue Manufacturing Co., Brooklyn, N. Y., is sending out a 4-page bulletin describing and illustrating the new TAG steam trap.

A two-page circular, printed in three colors, has been published by the Brown Instrument Co., Philadelphia, featuring a new line of potentiometer pyrometers. The circular illustrates six outstanding features of this new instrument, together with an illustration of the single record recorder.

The Gardner-Denver Co. of Quincy, Ill., has issued a 32-page bulletin, PC4, illustrating and describing the various sizes and mountings of its portable compressor line.

FROZEN CASING STRING IS LIGHT WORK FOR TRACTOR



Cardwell Allsteel Model SA-30 oil field hoist, mounted on a Thirty Caterpillar tractor, starting a frozen string of 8-inch 32-pound casing in an abandoned well about 4,000 feet deep, near Freeport, Tex.

NEW SUCKER-ROD SOCKET ANNOUNCED BY O'BANNON

The Walter O'Bannon Co. of Tulsa has perfected a sucker-rod socket for case-hardened couplings. This socket differs from the conventional design in that the coupling is not engaged by wickered slips. A heat-treated "slip unit" fits snugly within the bowl and engages below the coupling after it enters the socket. This socket is now being supplied to catch four sizes of boxes in 2½-inch tubing. A model which will catch two sizes in 2-inch tubing will soon be marketed, according to the company.

E. A. McCallum who was in charge of the San Francisco offices of the Stacey Engineering Co. has been transferred to the Pacific Coast headquarters of the International-Stacey Corp., 410 Subway Terminal Building, Los Angeles. All Pacific Coast business dealings with the R-C-W blower division, Stacey gas construction division and the Ideco oil well equipment will be handled from the Los Angeles office.

NEW MOTOR PULLEY HAS INTERESTING FEATURES

The Vari-Speed motor pulley, manufactured by the Reeves Pulley Co., Columbus, Ind., is presented as a new and simplified type of variable-speed unit. It is directly mounted on the motor shaft and forms the driving element between the motor and the driven shaft. It eliminates all auxiliary equipment. In design and construction details the unit is extremely simple. The speed control is infinite between a ratio limitation of 3 to 1. The horsepower transmitted is from fractional to 7½. The speeds are adjusted simply by turning a handwheel. The unit is built in six sizes and is applicable to any standard motor of these sizes, either A.C. or D.C.

The Vari-Speed motor pulley consists of an assembly of two opposing cone-faced discs, one stationary and one sliding, and an adjustable power compression spring, all self-contained and mounted on the motor shaft; a special motor base with adjusting handwheel, by which the motor may be moved forward or backward; and a special type of V-belt, which contacts on its sides between the cone-faced discs and on its flat surface over the driven pulley. Any type of straight face pulley—wood, metal or paper—may be used on the driven shaft.

When the motor is at the position on the special motor base nearest to the driven shaft, the V-belt assumes the largest diameter formed by the cone-faced discs and the maximum speed is obtained on the driven pulley.

By turning the handwheel, the motor is moved away from the driven pulley. This causes the V-belt to assume a smaller diameter between the cone-faced discs, the sliding disc moving laterally, but held in contact with the V-belt by means of the compression spring. Thus the speed of the driven pulley is reduced.

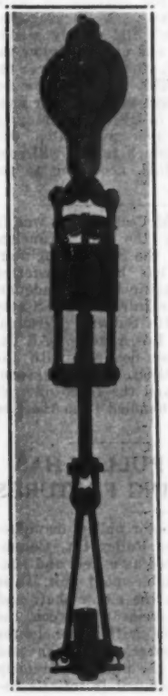
When the motor is moved to the position farthest away from the driven shaft, the V-belt assumes the smallest diameter, and the minimum speed is obtained on the driven pulley.

H. W. Kelsey, general sales manager since 1915 of the Russell Manufacturing Co., Middletown, Conn., has been promoted to take complete charge of all of the purchases of this company.

Oil Industry Equipment and Supplies

DEVICE IS DESIGNED TO SCREW OR UNSCREW PIPE

A new elevating and rotating device is to make its appearance in the oil fields soon, according to the inventor, Robert F. Parks of Compton, Calif. This new equipment is designed primarily to screw or unscrew a stand of pipe. It is attached to the elevating blocks and operates by means of a gear between the blocks and elevator encircling the pipe, the result being a rotating motion.



The device is attached to the traveling blocks by a bail which is attached to an eye at the bottom of the blocks. A bridge with a pair of sheaves is attached adjacent to the bail and an actuating shaft connected to the bridge. The shaft extends into a sleeve and moves up and down in the sleeve during operation. At the lower end of the sleeve a yoke and a pair of links to fit over the yoke are secured, the lower end of the links being attached to the elevator which grips the upper end of the pipe stand. The elevator may be of any standard design.

A pipe section is attached to the upper end of the sleeve and this pipe section extends upward around the shaft. A pair of superimposed female clutch members are secured to the inside of the pipe. Two male clutch members, provided with grooves which engage the left and right hand threads of the shaft, engage the two female clutch members. The direction in which the pipe section and the sleeve rotates depends upon whichever member of the pair engages its corresponding female clutch member. It is evident that one of the members must be held out of engagement at all times so that only one must engage its corresponding female clutch member. In order to accomplish this the pipe section is surrounded by the rotatable ring, which is provided with upward and downward extending cam slots. A pair of clutch releasing fingers are positioned in the pipe section and surround the shaft. These releasing fingers have outwardly extending pins which enter the respective cam slots. Thus as the ring is rotated one of the clutch engaging fingers is moved into engagement with the corresponding male clutch member to hold this male member out of operative engagement. The other member will be free to engage its female clutch member and thus rotate the pipe section sleeve and attached parts either to the right or left. Frictional resistance between the block and the pipe section is minimized by permitting the pipe section to engage a ball bearing mounted on top of a block through which the sleeve is guided. A counter weight slidably mounted on the bail and surrounding the sleeve is provided as a means of returning the sleeve, pipe section and attached parts to their vertical position.

AMONG THE EQUIPMENT HOUSES

C. J. Anderson, representing the Leschen Wire Rope Co., St. Louis, Mo., was a trade caller in Tulsa recently.

N. M. Grove, formerly branch manager in Tulsa for the Gustin-Bacon Manufacturing Co., is now factory representative for the Republic Rubber Co. in the Mid-Continent Field.

John Lovell, formerly with the Wickwire Spencer Sales Corp., has joined the sales force of the Lucey Products Corp.

R. S. McKeever, formerly sales manager of the International Supply Co. and later with the Bridgeport Machine Co. in Wichita, Kans., is now on the sales force of the Smith Separator Co. with headquarters in Tulsa.

The Russell Manufacturing Co., Middletown, Conn., manufacturer of Rusco brake linings and other automotive products, announces the appointment of the following jobbers: Mount Vernon Welding & Machine Co., 12 North Second Avenue, Mount Vernon, N. Y.; John M. Watt's Son, 120 Walnut Street, Philadelphia, Pa., and Motor Wheel Co. of Pennsylvania, Inc., 3617 Lancaster Avenue, Philadelphia, Pa.

J. Frank Ward, Jr., formerly petroleum division representative of the Stockham Pipe & Fittings Co., has taken a position with the Lucey Products Corp. to specialize in valve and pipe fittings sales, with headquarters in Tulsa. Lucey has been made exclusive oil country distributor for Jenkins Brothers valves.

The first fall meeting of the Steel Founders' Society of America, Inc., will be held in Chicago on Thursday, September 17. Other meetings scheduled include one to be held in New York on October 22, the day preceding the fall convention of the American Iron and Steel Institute.

The U. S. Hame Co., Buffalo, N. Y., has purchased the assets of the Lawson Manufacturing Co., Cleveland, Ohio, and the Warner Hammer Co., Cromwell, Conn. The Lawson company manufactured the Lawson pipe wrench.

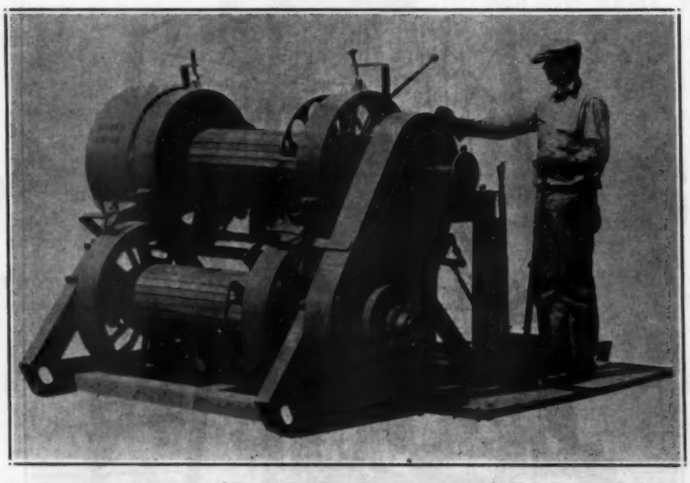
Profits of the Silent Automatic Corp., including its subsidiary, Silent Automatic Sales Corp., for May were more than 300 per cent greater than for the corresponding month in 1930, according to Walter F. Tant, president.

Gilbert O. Perry is now resident engineer in Houston for the Paxall Co., Inc., of Cranford, N. J. Mr. Perry is operating in conjunction with the T. T. Word Supply Co. of Houston and Shreveport, La., which represents Ace-O-Pax. Mr. Perry was formerly chief engineer of the General Cable Corp. plant in Perth Amboy, N. J.

The Fluid Packed Pump Co. (Mid-Continent), Oklahoma City, Okla., has announced its acquisition of the Robert J. Miller Co., Houston, Tex., thus gaining centralization of service in the distribution of Fluid Packed Pump and Shaffer Tool Works equipment.

Clyde Ellwood, vice president of the Axelson Manufacturing Co., Ltd., sailed recently on a European survey and sales trip. In addition to representing his own organization in the various European oil fields, Mr. Ellwood is acting for the Martin-Decker, Ratigan and Kobe companies, all oil tool manufacturers.

OIL FIELD SKID WINCHES ARE ANNOUNCED BY ALLSTEEL



Three skid winches for oil field use are announced by the Allsteel Products Manufacturing Co., Wichita, Kans. One, designated as the ES-50, is described as a highly mobile, fast, flexible and economically operated well-servicing and reclamation unit, adaptable for either electric or gasoline power. The tubing line and sand line are immediately available at all times for pulling and bailing, swabbing or cleaning.

One of the others, the ES-100, is larger than the ES-50, but is similar to it, excepting that it will accommodate a larger motor or internal-combustion engine. The ES-50 and the ES-100 will be supplied in single-drum or double-drum models as desired.

The third unit is smaller than the two others and is of single-drum type only. It is designed for operation with Ford or Chevrolet motors, the motor assembly from the Caterpillar Twenty or other similar power unit.

MEN KNOWN *in* THE EQUIPMENT FIELD

Ellsworth L. Mills

Ellsworth L. Mills, formerly sales manager for the Bastian-Blessing Co., Chicago, maker of welding equipment, has been elected vice president of the company. He will continue to be in charge of sales. Mr. Mills has sponsored several movements to improve conditions in the welding field. As president of the Gas Products Association he has been active in promoting better marketing methods among competitive companies.

Mr. Mills' experience in welding dates back to the days when, as a young engineer, graduate of Cooper Union in New York, he foresaw the possibilities of development in the welding field, and he has devoted himself to it since that time.

"The fact that only 20 per cent of the possible uses of welding are now employed indicates that the industry is far from the saturation point," said Mr. Mills.

GE MAKING VALVE THAT IS SOLENOID OPERATED

A new solenoid-operated valve, designated as CR-9507-A1, for controlling liquids and gases under pressure has been announced by the General Electric Co. Its many uses include remotely or automatically controlling the supply of oil or gas to furnaces, automatically controlling the flow of liquids in connection with weighing machines, and controlling the flow of water in cooling jackets on compressors.

The valve body is made of high-grade castings in two sections with the upper section fastened to the lower by bolts. The pipe connection has standard threads. An arrow on the upper body casting indicates the direction of flow.

The valves can be made normally open or normally closed, in the field, by drilling the mounting holes in the case and transferring the solenoid and operating mechanisms to the opposite side. The valves are of the unbalanced type and require little power for operation. A standard solenoid is used. All of the coils are designed for continuous duty and the solenoids are selected so there is ample power for operation.

Why TIMKEN is the oil industry's most efficient anti-friction bearing

The modern designing engineer selects anti-friction bearings mainly on the basis of these three essentials—friction elimination, load carrying capacity, precision. Hence, the oil industry's overwhelming preference for Timkens for its toughest jobs in rig fronts, draw works, rotaries, pumps, oil well swivel hooks and blocks, gas and steam engines and all other equipment. It will pay you, over and over, to specify Timken Bearing Equipped.

FRICTION ELIMINATION

The Timken Tapered Roller Bearing is practically free from all friction, due to (a) tapered rolls operating between tapered raceways, a basic principle originated and developed by Timken; (b) precision machining of the tapered rolls and raceways; (c) positive alignment of rolls under all loads and at all speeds; (d) spacing of the rolls by a scientifically designed cage... Roll spacing is an important fundamental. There is a limit to the number of rolls that can be used in a bearing of any given size without incurring a severe friction penalty. Positive roll alignment through end contact of the rolls with the cone rib, is a basic feature of the Timken Bearing. The cage is only used to space the rolls.

LOAD CARRYING CAPACITY

The Timken Bearing carries all radial, thrust and combined loads equally well, due to Timken tapered construction. Size for size, Timkens can carry maximum loads because (a) the loads are carried on the entire length of the tapered rolls, cone and cup; (b) the largest possible number of rolls permissible with full anti-friction efficiency is used; (c) the material employed is Timken-made alloy steel developed and produced exclusively for the purpose. Timken Bearings are carrying loads up to 8 million pounds in steel mills.

ACCURACY and PRECISION

The Timken Bearing is manufactured to close limits of accuracy under the most thorough and rigid system of inspection and testing that could be devised. Much of the special machinery used was designed and developed by Timken engineers. Timken precision has revolutionized the performance of heavy duty machine tool spindles.

TIMKEN *Tapered Roller* **BEARINGS**

Heat Halts Central West Operations

Slackening of Work Amounts Almost to Shutdown. Central Ohio Reports 12 Completions and Indiana Reports 3

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, July 27.—Extreme heat in the various divisions of the Central West Field, has brought about almost a shutdown. There were no new completions in the old Lima Field. About a dozen wells are under way in several of the counties. The Lake Shore & Southwestern Metal Co. is drilling three, one on the J. E. Hockman farm, Section 23, Damascus Township, Henry County; No. 1 Frederick Schafer farm, in Monroe Township, same county, and No. 1 Francis Oberly farm, in Providence Township, Lucas County. Jones & Coyle are drilling No. 1 Josephine Long farm, Section 17, Tymochtee Township, Wyandot County, where gas is being sought.

The Kurtz Gas Co. is working at a test on the William F. Kurtz, Section 20, Jackson Township, Hardin County. The Wiser Oil Co. has a location for No. 5 Grant Geiger farm, Section 12, Cessna Township, and one on the farm where the initial test in that area was drilled about a year ago. W. A. Rucker is working on No. 3 P. Gaffena farm, Section 25, Cynthia Township, Shelby County. Three wells are under way in the Tiffin Field of Seneca County. They are Clarence Donnel's No. 1 Frank Bosler, Section 1, Hopewell Township; No. 1 on the T. N. Ensil, same section, by J. L. Barrett, same section, and Arthur Geyer is working at No. 3 F. E. Baldwin, Section 30, Clinton Township, same county.

The Lake Shore & Southwestern Metal Co. is drilling a test near Grand Rapids, on the Henry Keckley farm, in Grand Rapids Township, Wood County. R. W. Kirk and others are drilling No. 3 E. H. James, Section 34, Biglick Township, Hancock County.

CENTRAL OHIO

An even dozen completions were reported from the Central Ohio Field and adjacent territory during the last week. Four were producers with an initial of 60 bbls., three dry holes and five gas wells. In new work starting there were eight locations staked and six new wells started spudding. The hot weather prevailing over the Central West area has halted drilling operations. Natural gas is the product which attracts the attention of lease holders now, as crude prices are such that the average operator can not see any reason for drilling for oil alone. Most of the wells now under way in Central Ohio are for gas.

In Ashland County, Orange Township, the Commonwealth Gas Corp. failed to find any sand in a test on the Ira Witmer farm, Section 36, at a total depth of 2,750 feet, and reported dry.

In Lorain County no new completions were reported. A new location was staked by Dillon & McFredericks on the William R. Squire, Lot 88, Columbia Township.

In Medina County, Chatham Township, the Edson Co.'s No. 22 Marcus A. Frank farm, Lot 20, reported with an initial of 30 bbls. from 406-57 feet, while Curtis & Eakens' No. 5 T. B. Brown farm, Lot 22, produced 20 bbls. initially from 350-97 feet. In Litchfield Township, same county, Edson Co.'s No. 1 N. D. Yost farm, Section 22, produced 10 bbls. initially from 214-314 feet, while No. 2 same farm, got only a small gas well, which was turned over to the farm owner for his own use, the gas being found from 261-68 feet.

In Wayne County, Milton Township, L. Harpster drilled in a light gas well in a test on the George R. James farm, Section 12, from 383-83 feet.

In Holmes County, Lydick Oil & Gas Co.'s No. 7 Charles Shank, Section 10, Monroe Township, is a light gas well in the Berea sand at 5 feet in the sand at a total depth of 567 feet.

In Richland County, Miflin Township, Harmon and George made a location for a test on the William Hines, Section 21.

In Summitt County, Wiser Oil Co. is drilling a test on the Shiltz and Bailey farm, Lot 85. In Muskingum County, Wayne Township, the Atha Co. made a location for a test on the Richard Huff farm, Section 3.

In Athens County, Standard Natural Gas Co. is drilling a test on the T. L. Young farm, Section 7, York Township.

In Stark County, Jackson Township, Stoltz Oil & Gas Co. drilled in a fair gas well in the Clinton formation from 4,395-4,417 feet in a test on the James Halter farm, Section 35. Brendall and others are drilling Nos. 3 and 4 on the Lake Cable Co.'s land, Section 14, same township. Same firm has a location for a test on the Jacob Cockley, Section 10. In Lawrence Township, same county, Wittmer Properties, trustee, is drilling a test on the Mary and J. S. Shuman farm, Section 15.

In Belmont County, Somerset Township, John Jefferis and others struck a fair gas well in a test on the John Jefferis farm, Section 31, in the Salt sand from 963-68 feet. Purdy, Peters and others are drilling No. 4 W. T. Line, Section 26, and McMillan and others made a location for a test on the William F. Sampson, Section 20.

In Meigs County, Ohio Fuel Gas Co.'s No. 3-5511, Edith I. Whaley, Section 21, Bedford Township, made a light showing of both oil and gas. Joe Kiggins' test on the Mary C. and R. E. Forrest farm, Section 2, Columbia Township, found a hole full of water at a total depth of 885 feet, which is in the Maxon sand. A. N. Bingle and others have a dry hole in No. 4 David A. Thomas farm, Section 6, Rutland Township, same county, in the Maxon sand from 1,014-45 feet.

INDIANA

Three completions were reported from southwestern Indiana during the week and all three were in Pike County. The Wiser Oil Co.'s test in the northwest corner of the Charles C. Doidge farm, SW, Section 24, Washington Township, is a dry hole at a total depth of 1,190 feet. Vern Burden drilled one of the same kind in a test 750 feet from the north line and 660 feet from the west line of the Preston heirs' farm, NW, Section 29, same township, and in the Alford Pool, at a total depth of 1,169 feet. H. A. Moore and, others' test in the southeast corner of the Harley Craig farm, NE, Section 19, same township, developed a gas volume of 1,000,000 feet, from a total depth of 1,156 feet. In Madison Township, same county, the Ohio Oil Co. abandoned No. 5 A. Willis farm, NE, Section 6.

No completions were reported from the extreme southern part of the State in Spencer or Perry Counties where fairly good production has been found in the past, but several wells are under way, and the owners are not in a hurry to bring them into production on account of the low price of crude.

Knox County stands for some active work as soon as the extremely hot weather is over as gas wells have been found there, while most of the entire southwestern and southern portions of the State are in for a thorough testing with better conditions.

Word comes from Greene County that the Old Dominion Corp. struck a gas showing at 350 feet and at 2,030 feet the well on the Mager-Fisher farm, SW, Section 4, Washington Township, struck a deeper gas pay reported with a volume of 1,000,000 feet, which may be the opening of another worthwhile gas area.

ILLINOIS

Little is being accomplished by the drill in any part of Illinois. Kemper and Payne drilled in a dry hole in a test 570 feet from the south line and 250 feet from the east line of the Barton Steward farm, SE, Section 18, Greenup Township, Cumberland County, at a depth of 1,042 feet.

Tillifer & Cramer's test 1,572 feet from the north line and 920 feet from the west line of the D. H. Ordner farm, NE, Section 18, St. Francis Township, Effingham County, is a dry hole at a depth of 2,200 feet.

In the Allendale Field, Wabash Township, Wabash County, Coleman and others have a dry hole 400 feet from the south line and 200 feet from the east line of the L. Liddle farm, SW, Section 15, at a total depth of 1,609 feet.

In Petty Township, Lawrence County, the Ohio Oil Co. abandoned No. 9 A. R. Applegate farm, NW, Section 18; No. 4 Oris Pepple farm, SW, Section 12, and No. 11 Edwin Wiswall farm, SW, Section 7, same township.

In the Dupo Field, Sugar Loaf Township, St. Clair County, the St. Clair County Oil & Gas Co. abandoned No. 1 Hall & Wallace property, NW, Section 28.

MICHIGAN

Clare County is the only one in the State to report a completion in the last week. The well, drilled by the John A. Mercier Co., is a test on the James E. Bicknell farm, N half SW, Section 6, Grant Township, Clare County, with an estimated gas volume of 4,750,000 feet, and is the fifth gas producer to be found in the county. Importance is attached to the results of this well. In the case of the Clare County project, where four gas wells have been drilled in, the new well will not only serve as an additional source of supply for natural gas but it shows conclusively that a good gas field has been developed along the division line of Clare and Isabella Counties. By a little deeper drilling the gas volume may be increased, it is said, in the Bicknell well.

In the far east field in Greendale Township, Midland County, Walter L. McClanahan's No. 1 A. J. Struble, SW SE, Section 10, is the next well for completion. It is approximately 3 miles to the east of the old proven Chippewa-Greendale Pool. It will mean much for the new pool, if it proves to be a producer like the two wells on the Noah Skinner farm, Section 8, same township, and the discovery well of the new east pool, which was on the George Harnick farm, Section 15.

With the exception of the gas well on the Bicknell farm, in Clare County, and the test nearing completion on the Struble farm, comparative quiet prevails in the entire field.

KENTUCKY

As a result of the latest reduction in the price of western Kentucky crude, from 50 to 35 cents a barrel, the production of oil in this field has been cut to the lowest point in the field's history, reports from the operators indicate. In the opinion of a representative of one of the larger companies interested in this field, operations here will be practically suspended.

Miller and Damron, Hupp & Duff and the Leeper Oil Co. are reported already to have suspended operations. The Rex-Pyramid Oil Co. is expected to follow. Local offices of other operating firms, including the Cumberland Petroleum Co. and the Chester Oil Co. were reported to be awaiting orders before taking any steps to curtail further operations.

K. Z. Wilking, member of the firm of Hupp & Duff, said that his company suspended pumping its approximately 100 wells in Daviess, Ohio and Hancock Counties on July 13, and will remain closed until the oil price is raised to a level at which it may resume pumping without sustaining a loss.

A well above the average completed by the Creek Drilling Co. on the L. E. Morris farm, in the Barrett area of McLean County, is No. 3 on the lease which produced 225 bbls. initially, the pay being found in both the Barlow and Bethel sands, although the hole was made a deep test of lower formations without finding any deep down crude at a total depth of 3,200 feet.

The Seaboard Oil & Gas Co. is drilling a test for gas on the Neize farm, near Madisonville, in Hopkins County, and will drill at least five tests. One test will be made in Webster County; one in Muhlenberg County, one in Christian County and two in Hopkins County. This company's headquarters are in Trenton, N. J.

In Ohio County, Hall and Garrison drilled in a gas well with a volume of 750,000 feet in No. 1 on the M. Hammer farm.

In Daviess County, in the Crowe Pool, two new wells are drilling. They are S. A. Russell and others' No. 1 Lulu Crowe farm, and S. A. Cobb and others' No. 2 J. P. Howard farm.

CANCELLATION OF CRUDE LAW CLOSES REFINERIES

BELGRADE, Yugoslavia, July 27.—The Standard Oil Co. of New Jersey and the Royal Dutch-Shell Co. have shut down their big oil refineries in Yugoslavia and have shipped back to Rumania the supplies of crude oil which had arrived on the Danube and Save Rivers.

This action was taken because Yugoslavia cancelled a law she passed some years ago allowing crude oil to enter duty free. It was as a result of this law that the British and American companies built their refineries. That of the Standard Oil Co. last year earned over $200,000.

When they heard the government intended to impose a duty on their raw material the companies warned the cabinet they would close down and now they have carried out the threat. Attempts by the British and American Legations to effect a compromise so far have been unsuccessful.

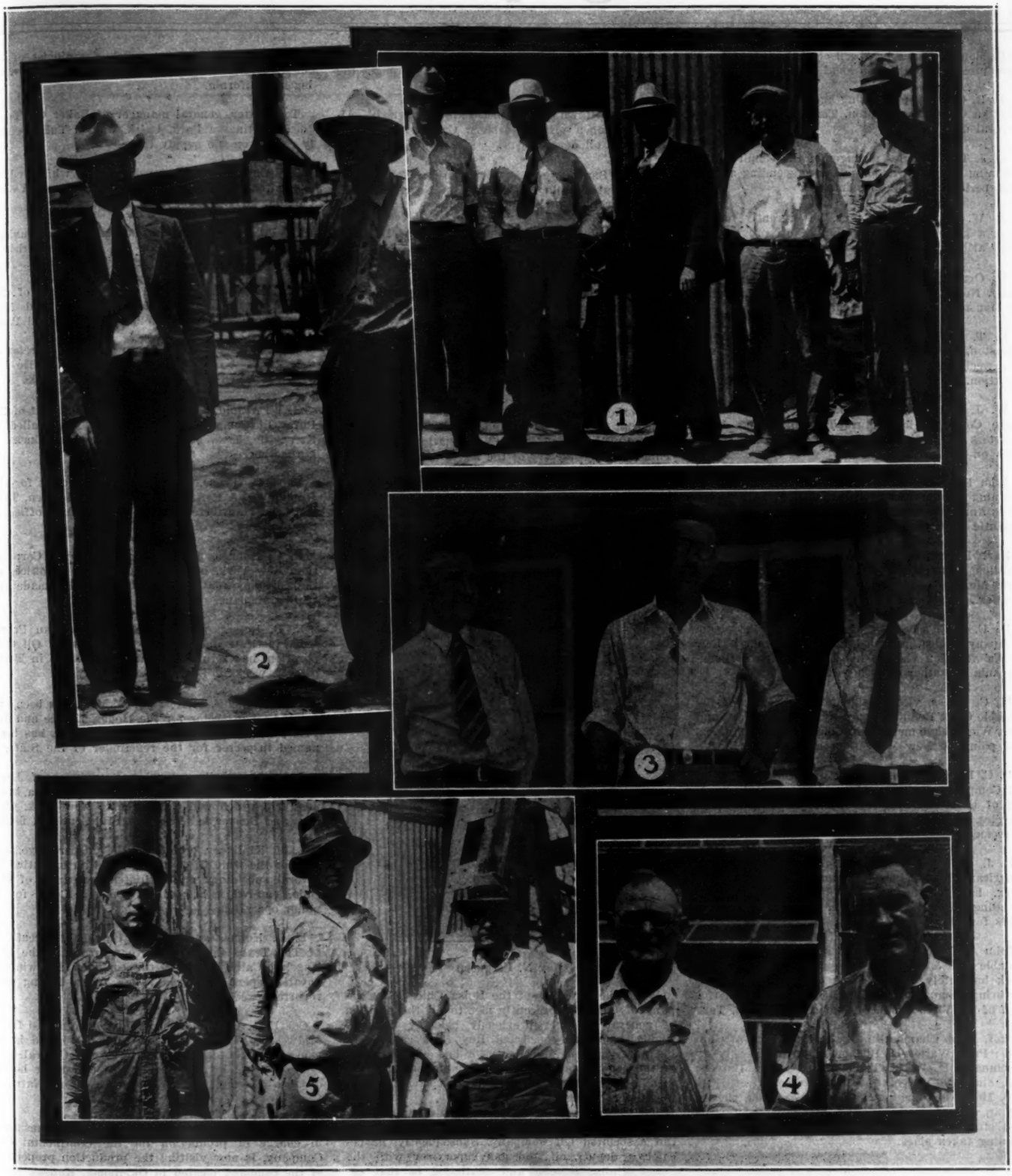
ORGANIZE TO FIGHT FIRES

DALLAS, Tex., July 27.—Organization of an oil fire fighting body in East Texas by the American Petroleum Institute was announced here by H. N. Bakesee, safety engineer of the institute. The organization will function through the new East Texas A.P.I. chapter. Fire fighting equipment will be listed and made available for emergency fire fighting use under the plan.

MANY AIRPLANES USED

More than 60 oil, gas, pipe line and associated companies employ airplanes in their business operations.

As Seen Here and There By The Journal's Cameras



1—Left to right: James L. Sewell, A. M. Lockett & Company, Odessa, Tex.; P. E. Workman, contractor, Dallas, Tex.; Frank Gardner, chief engineer, Simms Oil Company; John Bryan, plant superintendent, Taylor Refining Company, Tyler, Tex.; and B. F. Perkinson, chief engineer, Taylor Refining Company. 2—J. J. Thomas, vice president, East Texas Refining Company, and E. L. Rogers, superintendent, Longview, Tex., refinery of company. 3—A. L. Cone, G. L. Rowsey, president, Taylor Refining Company, Taylor, Tex.; and Mac Kennedy, division manager, Taylor Refining Company, Tyler, Tex. 4—F. O. Marler and F. E. Griffin, Gulf Pipe Line Company, Fort Worth, Tex. 5—H. C. Jones, tooldresser; L. H. Caudle, driller; and W. O. Banter, driller, Wirt Franklin Petroleum Corporation, Oklahoma City, Okla.

Personal Paragraphs About Oil Men

Gordon Brochner has been elected a director and vice president of the National Transit Company.

* * *

F. R. Oldham, purchasing agent of the Gulf Production Company, Houston, Tex., was in Tulsa for several days recently.

* * *

O. J. Tuthill, sales manager of the Empire Oil & Refining Company, and family are spending a vacation period at Colorado points.

* * *

A. W. Baxter, of Calgary, left recently to conduct a geological investigation of oil prospects in the Cariboo district, British Columbia.

* * *

R. Ogarrio, vice president of The Texas Company, New York, has been spending several weeks in Houston, Tex., visiting company offices.

* * *

B. T. McNeil, independent petroleum marketer, Houston, Tex., and Mrs. McNeil, are spending several weeks in Mexico City, Mexico, for their summer vacation.

* * *

W. J. McKee, service manager of the National Tube Company, has returned to his Tulsa headquarters after spending a month in the East Texas area on business.

* * *

John Edwards, general salesmanager of the Gulf Refining Company of Toledo, Ohio, and his sister, Miss Ann Edwards, are spending a few weeks in Atlantic City, N. J.

* * *

Earl Payne, a land and lease man with the Phillips Petroleum Company in West Texas and New Mexico, has been transferred from Roswell, N. Mex., to Midland, Tex.

* * *

H. E. Felt, secretary of the Warren Petroleum Company, Tulsa, returned last week from a four weeks' vacation visit to his former home in Pennsylvania and other eastern points.

* * *

H. C. Wiess, vice president and director of the Humble Oil & Refining Company, Houston, Tex., and Mrs. Wiess, have motored to Colorado Springs, Colo., and points in New Mexico for a vacation trip.

* * *

P. C. Black, general attorney for the Continental Oil Company, recently addressed the monthly meeting of the Petroleum Accountants Society at Los Angeles, Calif., on the Kettleman North Dome Agreement.

* * *

R. J. (Bob) Eiche, oil field representative of the American Steel Export Company, Inc., of New York, has returned to the United States after spending the last 14 months in South American oil fields for his company.

* * *

John A. Coleman, at one time connected with the Humble Oil & Refining Company in oil treating work but lately of the Texas Controller & Manufacturing Company, Cleveland, Ohio, has joined the staff of the Visco Products Company, Houston, Tex.

* * *

Prof. R. T. Chamberlin, of the University of Chicago; Prof. Walter H. Bucher, of the University of Cincinnati; D. W. T. Thom, of Princeton University, and Lee Welch, consulting geologist of Billings, Mont., are making a tour of Wyoming, checking up on areas which offer interesting spots for field studies of the processes by which mountain building takes place.

* * *

C. E. Olmstead, vice president and general manager for The Texas Company in California, has announced the appointment of Torrey H. Webb, formerly of the lands and leases division of the company, to the post of assistant vice president and general manager. James T. Wood, Jr., succeeds Mr. Webb as chief of the lands and leases division. Both Mr. Webb and Mr. Wood have a wide acquaintance in the oil fraternity.

T. J. Boyd, representing the Mathieson Alkali Company, New York, is on a trip through the Southwest.

* * *

Thomas Rawn has returned to Wainwright, Alberta, after a visit to eastern Canada in connection with oil development.

* * *

Harry Smith, who has been working for the International Petroleum Company in Negritos, Peru, is in Petrolia, Ontaria, on furlough.

* * *

Herbert James, Tulsa representative of E. I. du Pont de Nemours Company, has returned from a business trip to Chicago and other cities.

* * *

J. S. Wallace, of the Richfield Oil Company of California, was recently elected second vice president of the Los Angeles Petroleum Accountants Society.

* * *

Maurice Taylor, welding technician for the Lincoln Electric Company, of Cleveland, Ohio, sailed for Tokyo on June 20 from San Francisco to confer with officials in charge of ship construction for the Imperial Japanese Navy, and supervise the installation of "Electronic Tornado" automatic welding machinery in the factory of the Kawasaki Company.

Men of the Industry

Roy N. Ferguson

When the directors of the Bolsa Chica Oil Company of California recently met to fill the position of general manager previously held by the late Irving Augur they selected Roy N. Ferguson. In his new position, Mr. Ferguson has direct charge of the company's drilling and production activities in addition to handling all general matters pertaining to the company.

Mr. Ferguson, a consulting geologist in Los Angeles since 1923, spent four years in the employ of the Associated Oil Company. Subsequently, he became a deputy oil and gas supervisor with the State Mining Bureau and continued in that capacity for four years. In 1920 he was appointed an oil advisor on the Hoover technical commission in Warsaw, Poland. In addition to producing properties at Long Beach, Ventura Avenue and Piru, the Bolsa Chica Oil Company has a well suspended above the Temblor on the Ferguson prospecting permit in the North Dome which was obtained by the Bolsa Chica's general manager several years ago.

A. Schwennesen, formerly chief geologist of the Shell Petroleum Corporation, Houston, Tex., is visiting in California.

* * *

Ted Sutter, general manager of Baker Oil Tools, Inc., Huntington Park, Calif., was in Tulsa recently calling on the supply trade.

* * *

Malcolm MacLay, seriously injured while drilling on United Oils' No. 4 test in North Turner Valley, Canada, is recovering in Calgary.

* * *

H. E. Hudson, Jr., an official of the Tankers Company, Ltd., arrived in Los Angeles Harbor a few days ago on the tanker Scottish Border.

* * *

B. M. Nowery, general superintendent of the United Gas Company, Houston, Tex., and Mrs. Nowery, are touring in Yellowstone National Park.

* * *

William H. Correa has been elected a director of the Standard Oil Company of New York. He has been connected with the company since 1908.

* * *

G. W. Arnold, head of the land department of the Pure Oil Company, Houston, Tex., was called to Greenville, Tex., because of the serious illness of his mother.

* * *

Faith C. Owens, former district geologist for the Humble Oil & Refining Company, in McAllen, Tex., has been transferred to the Laredo, Tex., office of the company.

* * *

R. C. Holmes, president of The Texas Corporation, New York, is in the Houston, Tex., offices of the company for an indefinite stay. He made the trip by airplane.

* * *

E. B. Reeser, president of the American Petroleum Institute and head of the Barnsdall Oil Corporation, has returned to his home office in Tulsa after a week in Los Angeles, Calif.

* * *

T. A. Stancliff, of Roswell, N. Mex., has been appointed oil inspector for the Hobbs, Eunice and Jal Pools, and J. D. Hunter, also of Roswell, has been named inspector for the remainder of the State.

* * *

J. A. Campbell, natural gas engineer of Long Beach, Calif., recently left for the East on a business trip which will carry him to New York, Chicago and Denver in addition to Mid-Continent fields.

* * *

L. M. Kiplinger, cashier at the Casper, Wyo., offices of the Ohio Oil Company, and an executive in several subsidiary and affiliated companies of the Ohio, entered a hospital in Denver, Colo., for a minor operation.

* * *

L. R. Holmes and Charles Chandler, executives of The Texas Company, have returned to the Los Angeles, Calif., office of the company following a vacation spent in Owens Valley, where fishing was reported excellent.

* * *

Col. E. A. Froyd and his family have moved from Midwest to Torrington, Wyo. Colonel Froyd is in charge of that district for the North Central Gas Company and he is a member of the upper house of the Wyoming state legislature, from Natrona County.

* * *

A party headed by E. J. Nicklos, vice president in charge of production for the Continental Oil Company, is now visiting the production properties of the company located in Oklahoma, Kansas, New Mexico, Colorado, California, Wyoming, Montana, Arkansas, Louisiana and Texas. Other members of the party include the following division superintendents: L. P. Carpenter, Oklahoma-Kansas division; G. H. McIntyre, Texas-New Mexico division; R. S. Shannon, Rocky Mountain division, and A. H. Bell, California division. The inspection trip is being made by automobile.

IF YOU COULD

SEE INTO THE FUTURE

NEW BEDFORD
NONE BETTER
PURE MANILA

CORDAGE

would be your choice always

Even though you are not a mystic, it takes no occult power to know the future of this proven cordage. The performance today of rope bought in the past is the surest guarantee you can find of the long life of New Bedford.

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(Look for the red and black marker)
BULL ROPES
DRILLING CABLES
TORPEDO LINES

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THE CONTINENTAL SUPPLY CO., LTD.—224 Traders Building, Calgary, Alberta, Canada . . . *Export Offices: CONTINENTAL EMSCO CO. Inc., 74 Trinity Place, New York—London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2*... CONTINENTAL EMSCO S. A. R. 7, Strada Eminescu, Ploesti, Romania.

COJ-7-30-31-AT

CONTINENTAL

Natural Gas Industry Developments

SMALL DECLINE SHOWN IN GAS UTILITY INCOME

Revenues of manufactured and natural gas utilities aggregated $54,788,105 in May, 1931, as compared with $55,505,276 in May, 1930, according to reports to the statistical department of the American Gas Association from companies serving some 13,719,538 customers and representing about 90 per cent of the public utility distribution of manufactured and natural gas.

This slight decline in revenues, amounting to only 1.3 per cent, is the smallest decrease in gas utility revenues registered during the current year, and doubtless presages the attainment of stabilized levels from which future changes should take an upward trend.

Revenues of the manufactured gas utilities aggregated $32,427,273 for the month, a drop of 1.5 per cent from a year ago, while gas sales totaled 30,419,411,000 cubic feet, a decline of 1.2 per cent.

The natural gas utilities reported sales of 54,742,695,000 cubic feet for the month, a decrease of 4.5 per cent from the May, 1930 figures. Despite this drop in sales, however, natural gas company revenues aggregated $22,360,832 for the month, as compared with $22,590,984 a year ago, a decrease of only 1 per cent in revenues.

This relatively smaller decline in natural gas revenues, as contrasted with sales, was the result of marked expansion of sales and revenues in the domestic and commercial fields, which tended to offset continued declines in sales and revenues from industrial customers. While revenues from industrial sales for the month averaged more than 20 per cent under May, 1930, revenues from domestic and commercial sales were more than 7 per cent above the preceding year.

PRODUCTION OF GAS TO BE CURTAILED FURTHER

Orders for further curtailment of natural gas production in the Ventura Avenue Field of California have been issued by James S. Bennett, attorney for the state director of natural resources.

Gas waste and other troubles now being experienced by the oil industry have led to a possibility that Ventura Avenue operations in the near future might be entirely halted.

Ralph B. Lloyd, principal lease owner, told Ventura County officials and business leaders that he had been approached with a proposal that he consent to a cessation of drilling on the part of the Associated Oil Co., such as the Shell already has obtained from the Taylor estate.

The order from Attorney Bennett set forth the fact that an unreasonable wastage of natural gas was taking place in the Ventura Avenue Field contrary to state law, and served notice that the operators must at once comply with the statutes or else an action in equity would be instituted.

DOUGLAS SMELTERS USE GAS

Copper smelters in the Bisbee-Douglas district of Arizona now are using natural gas for fuel. The gas is piped from fields in Texas. The Phelps Dodge Corp. has altered its furnace to make the change from fuel oil to natural gas while the Calumet & Arizona Mining Co. installed an entirely new furnace.

ANOTHER WAYNE GAS WELL

WAYNE, N. Y., July 27.—The fifty-sixth well in the Wayne gas fields has been brought in here, with flow estimated at 6,000,000 feet daily.

NATURAL GAS INDUSTRY UNDERGOING TREMENDOUS GROWTH IN CALIFORNIA

By Claude C. Brown
Gas Administrator, California State Railroad Commission

The discovery and development of the extensive oil and gas fields in California has brought about a tremendous expansion of the natural gas industry in that State, the greater portion of which has taken place within the past 10 years. During this period the production of natural gas has increased from a total of 68,650,000,000 cubic feet in 1920 to 544,637,000,000 cubic feet in 1930.

Over this same period the transmission and utilization of this gas has necessitated an increase in the mileage of transmission lines of from a total of 980 miles in 1920 to over 3,000 miles completed and under construction in 1931, and the number of natural gas consumers has increased from 95,000 to 1,311,000.

From a modest beginning in the year 1913, when Midway Gas Co. laid a 12-inch flanged line a distance of 110 miles from the Midway fields to Los Angeles, the natural gas transmission system in the State has grown until at present it extends from Roseville, Placer County, on the north, to the San Diego County boundary on the south, a distance of 750 miles, and represents a total investment of upwards of $200,000,000.

Among the transmission projects which were completed or started within the last two years in California are shown in the tables below.

As will be noted from the foregoing, the greater portion of this transmission line construction is installed for the purpose of taking natural gas out of Kettleman oil field.

This field, which is located in Fresno and Kings Counties, consists of three domes, the north, center and south dome. Due to the present condition of the oil market only one of these domes has been developed, the north dome. There are now eight producing wells on this dome. It is estimated that the proven area of this

(Continued on Page 130)

PACIFIC GAS & ELECTRIC CO. LINES

From—	To—	Size (in.)	Miles
Buttonwillow	Gathering line	16	1.72
Buttonwillow	Kettleman compression station	16	49.84
Standard Texas plant	Kettleman compression station	16	3.36
Kettleman compressor station	Panoche Junction	22	40.67
Panoche Junction	Milpitas	20	108.61
Milpitas	San Francisco	20	44.70
Milpitas	Oakland	20	36.47
Oakland	San Pablo	20	16.17
Coast line	San Jose	10	3.66
Hollister	Salinas	12	23.56
Salinas	Monterey	8	19.74
Monterey	Carmel	6	4.10
Stanpac line	Milpitas	22	36.20
Stanpac line	Tracy	4	6.06
Stanpac line	Sacramento	16	74.00
Davis	Dixon	6	8.53
Manteca	Modesto	8	22.00
Modesto line	Riverbank	6	5.25
Riverbank	Oakdale	4	5.75
Stanpac line	Patterson	4	2.50
Stanpac line	Newman	4	5.50
So. Cal. Fresno line	Fowler	6	12.00
Fowler	Sanger	4	4.41
Stanpac Carquinez	Petaluma	16	3.11
Stanpac Carquinez	Petaluma	12	37.00
Stanpac Carquinez	Petaluma	8	1.52
Napa	St. Helena	6	20.64
St. Helena	Calistoga	4	5.70
Shellville	Glen Ellen	6	6.99
Santa Rosa	Healdsburg	6	17.10

STANDARD-PACIFIC GAS LINE, INC.

Standard Oil Kettleman plant	P.G.&E. Kettleman compression station	22	3.62
P.G.&E. compressor station	Tracy Junction	26	93.70
P.G.&E. compressor station	Tracy Junction	24	24.80
P.G.&E. compressor station	Tracy Junction	22	24.00
Tracy Junction	San Pablo	26	26.80
Tracy Junction	San Pablo	22	19.10
Tracy Junction	San Pablo	20	12.70

SOUTHERN FUEL CO.

Kettleman Hills Field	Long Beach	26	210.00

COAST COUNTIES GAS & ELECTRIC CO.

P.G.&E. Coast line	Watsonville	10	13.80
P.G.&E. Coast line	Gilroy	6	5.50
Gilroy	Morgan Hill	4	10.30
P.G.&E. Coast line	San Juan	4	2.60
P.G.&E. Coast line	Hollister	6	2.30
Concord	Walnut Creek	4	6.00
Walnut Creek	Danville	4	7.00
Pittsburg	Bay Point	4	4.50
Stanpac line	Los Banos	4	8.00
Stanpac line	Gustine	4	7.00
Stanpac line	Dos Palos	4	10.00
Stanpac line	Byron	6	6.00
Stanpac line	Miller's canal	8	33.00
Stanpac line	Standard Oil pumping stations	4	100.00

SANTA MARIA GAS CO.

Gaviota	Orcutt	8	37.00
Betteravia	Guadalupe	6	5.00
San Luis Obispo	Paso Robles	6	30.00
Orcutt	Santa Maria	6	6.00

SOUTHERN CALIFORNIA GAS CO.

Kettleman Hills	Fresno	10–8	57.50
Lemoore	Visalia	6	30.50
Selma Junction	Selma	4	14.00
Kettleman Hills	Buena Vista Hills	20	70.00
Wineville	Colton	10	14.00
Banning	Palm Springs	4	22.00
Corcoran Junction	Corcoran	4	16.50
Rio Bravo	Delano	6	43.00
Alberhill	Elsinore	4	6.50
Taft	Los Angeles	26–22–20	62.00

SOUTHERN COUNTIES GAS CO.

Laguna	San Diego County line	12-75	11.90

SAN JOAQUIN LIGHT & POWER CORP.

Kettleman Hills	Merced	12–8	119.00

RAVENNA CONSUMERS GET GAS FROM TWO BALLOONS

Two big racing balloons were used as emergency illuminating gas containers recently when the East Ohio Gas Co. replaced pipe lines near Ravenna, Ohio, according to the American Gas Association headquarters in New York.

While changing over from old lines to new, it was necessary to shut off the city's gas supply, and so the balloons were inflated with 35,000 feet of gas in order that they might serve as a temporary source of supply. The balloons were filled directly from the main gas lines by means of pipe laid in the form of a "Y."

After the balloons had been inflated with the gas and the controlling valves on the lines were closed, it was possible to connect one of the balloons with a portable compressor which had a capacity of 220 cubic feet per minute. Gas then was pumped from one balloon at a time and passed through the compressor into the main. In this way the consumers in Ravenna were safeguarded against any decrease in their gas supply or even in the pressure of the gas.

The operation was satisfactory to the East Ohio Gas Co., according to J. G. Hanks, general superintendent, Cleveland, and W. T. Hagan, also of Cleveland. R. W. Ramsdell of the main line department of the East Ohio Gas Co. had charge of the operation.

The balloons were inflated and operated by Goodyear Tire & Rubber Co. factory personnel in charge of J. F. Cooper, general foreman of the Goodyear balloon department.

COMPANY'S OFFER ACCEPTED

AMARILLO, Tex., July 27.—Acceptance by the city commission of the offer of Amarillo Gas Co. to reduce its natural gas rate to 27 cents per 1,000 feet has ended the city's fight against the company and has caused rescinding of the former's resolution to institute proceedings to condemn the local distributing system of the company. The city council had progressed to the point where it had contracted with J. M. Huber Petroleum Co. for purchase of gas, delivered at the city gates, for 5 cents per 1,000 feet, the gas to be retailed through the proposed municipal distributing system at 22½ cents per 1,000 feet. Under terms of the agreement, Amarillo Gas Co. has purchased the pipe line of J. M. Huber Petroleum Co. for $140,000 and will purchase gas from the company for a limited time.

COMPANY ASKS HEARING

CHICAGO, July 27.—Illinois Commerce Commission has taken under advisement the application of Peoples Gas Light & Coke Co. for authority to change the heating value of its gas through mixing natural gas and artificial gas upon completion of pipe line from Texas Panhandle. Hearings on this application developed no serious opposition to the company's proposal.

Commission will set date for hearings on new rates when they are filed by Peoples Gas which will probably be in about two weeks.

NEW GAS COMPANY FORMED

The Montana Communities Gas Co. has been incorporated in Lewistown, Mont., where it will have its principal offices. Capital stock is $100,000 and the directors are C. O. Moore of Kansas City, H. L. DeKalb, J. Leo Jolly, O. W. Belden and E. L. Wetmore, all of Lewistown. The company, which will engage in the distribution of natural gas, is affiliated with the Lewistown Natural Gas Co.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

HYPOCHLORITE TREATMENT FOR CONTROLLING MOSS GROWTH

Your discussion, July 9, 1931, page 66, for preventing moss growth in condensing towers, does not mention the hypochlorite method which I am told is recommended for this purpose. Have you any information on this?—N. M. D.

Pure chlorine is extensively used for the treatment of domestic water supplies for the purpose of killing and inhibiting objectionable bacterial growth. Investigations have demonstrated that this element is efficacious for preventing organic growth, algae, moss, etc., from collecting on baffles, tubes, etc., in condensing systems. Liquid chlorine, handled in cylinders, is the form commonly used for city water treatment, but the combined form, calcium hypochlorite, is convenient for use in power stations, gasoline plants and refineries.

Organic growth of this character is slow to accumulate so it may be easily controlled by frequent applications of very small quantities, such as once a day. If the system is clean, a daily application of 1.5 ounces of calcium hypochlorite to each 1,000 gallons of water will usually be found sufficient to arrest the growth; a particularly bad water may require a somewhat higher concentration and treatment twice a day. Often no thought is given to the need of this treatment until there is a serious drop in efficiency as the result of an extensive growth. Under this condition it is advisable to thoroughly brush or otherwise clean the tubes and other parts before making any attempt to introduce the chemical. The powder may be introduced in the dry form at any convenient open place in the circulation where it will dissolve rapidly and be distributed.

In plants where it is not necessary to recirculate the cooling water, the following method of treatment is recommended. Dissolve one 4-pound can of calcium hypochlorite in 150 gallons of water. The tank containing this stock solution should be so located as to permit the delivery to the water running to the condenser pump intake. Then for each 1,000 gallons per minute pump capacity, 4 gallons per minute of this stock solution should be run for a period of 15 minutes for each treatment. This makes a total treatment of 60 gallons of stock solution carrying 2,000 p.p.m. available chlorine to 15,000 gallons of water. If the pump capacity is greater or less the treatment may be changed by decreasing the dosage per minute or increasing the dilution of the stock solution.

BRIGHT STOCK FROM STEAM REFINED 600 STOCK

I would appreciate your giving me some information on how to filter a 600 S. R. stock into good bright stock. I would like to figure on filtering a good 600 Pa. and also a 600 Mid-Continent on a small scale. Some 600 S. R. stocks have low pour tests so that it might not be necessary to further dewax, but I am also interested in finding out how to lower the pour test along with the filtering to bright stock where this would be necessary.—W. A. M.

Conversion of the ordinary grade of steam refined 600 oil to a good quality bright stock by filtering alone is not possible. The term bright stock means a high grade lubricating oil which is clear and attractive in color, usually having a pleasing green cast; besides this color feature it has a high viscosity, high flash and fire test, low carbon residue, and a low pourpoint. All of these characteristics are necessary for it to be a bright stock oil, but color is of paramount importance. Even if it were possible to make an oil perfect in all other details it could not be a bright stock with the color requirements lacking. This does not mean that the brilliant appearance has anything to do with the lubricating value of the oil, but it does indicate the degree of refining required to obtain the desirable properties indicated; the fine color is largely incidental.

The operations required to finish a bright stock to color are expensive and the recent improvements in the refining process for the manufacture of this oil are of particular interest in that they involve the reduction of this expense. This is especially true when handling Mid-Continent or mixed base crude by vacuum distillation. By this method it is possible to obtain the product with but little color, consequently the treating loss is reduced and a large saving of acid is accomplished in the subsequent operation.

Possibly a brief outline of the method for making bright stock will serve to further explain why the ordinary refined stock cannot be changed into bright stock by the simple operation of filtering. The residue must be reduced to the desired viscosity, with suitable fire and flash, by means of fire and steam. The next step is to treat with sulphuric acid, now largely done just before filtering; here the oil is treated with acid, the excess acid removed by settling, and the acid treated oil thoroughly agitated with a special clay, partially settled, diluted with naphtha, and the mixture passed into a press filter. The filtered mixture is then chilled, about 50° below zero, before passing through the centrifugal machines for dewaxing. The oil-naphtha blend is pumped to a still for the separation of the naphtha and the reduction of the bright stock to the desired specifications. This is no more than a very brief outline, there are many details concerning quantities and temperatures that are essential.

The conditions surrounding bright stock manufacture at this time were discussed by Max B. Miller, in The Oil and Gas Journal, July 9, 1931, page 22, under the title Distilling Topped Crudes for Lubs.

MAKING A PETROLEUM CHEMIST

I am a graduate of ——— high school and I am thinking of becoming a petroleum chemist. I have taken one year of chemistry in my junior year in high school. I have just about enough money to take me through one year of college and I would like to know whether I could get enough chemistry in one year by taking nothing but chemistry to get a job around an oil refinery as a chemist?—E. M.

The direct answer to the question is "No."

Petroleum, as found in the different parts of the world, varies to a great extent in its general and special properties. These must be studied, recognized and controlled. It is the business of the petroleum chemist to separate, identify and prepare the numerous petroleum products for the market. A thorough knowledge of all factors involved is recognized as requiring a broad training with an extensive knowledge of chemistry, physics and mathematics. English, history, geology, biology and every other department of knowledge has its part in assisting the chemist in his work. The investigations being made in petroleum laboratories are considered to be among the most difficult problems of chemistry.

Chemistry is the foundation upon which the petroleum industry rests. Without it, gasoline, lubricating oil and the other products would be of uncertain composition; the quality would be such that most of them could not be used in the arts. It was the investigation of Professor Silliman, Jr., professor of general and applied chemistry in Yale College, reported in 1855, directing attention to the commercial possibilities of rock oil then exuding from the earth in Pennsylvania which inspired the drilling of the Drake well four years later. He separated the products from the oil by fractional distillation, studied their properties and suggested possible uses. This illustrates petroleum research.

The getting on in this world depends very much on whether one masters practice or theory, becomes an artisan or an artist, or is satisfied to follow and does not care to lead. It is to be regretted that all chemists are not chemists; some are analysts and some others are testers. The oil refinery laboratory always needs testers and analysts to assist the chemists, and it is from these assistants who give evidence of ability and knowledge that the chemists are chosen.

The chemist has made available large quantities of gasoline through the cracking process and increased refinery yields without which it would not have been possible to develop the automobile industry to its present important position. The purification of the gasoline, lubricating oil, etc., the use of acids, filtering earths and other materials have been possible because chemists mastered the problems. The tendency of some gasolines to knock in the motor is overcome or controlled by the addition of a compound, the discovery of a chemist; also, the standard for knock rating is the result of chemical research.

This very brief reference to some of the things that are the concern of the petroleum chemist may serve to give an idea of how much ground is to be covered when preparing for the profession. No adequate grasp of the subject could be obtained in a study confined to one year. Many of the petroleum chemists known in the industry have spent six to seven years in their university work preliminary to entering on the special work in which they are now engaged. Chemistry is of increasing importance to the petroleum industry and there is a growing tendency to require applicants for places in the laboratories to have had at least a four years' course in chemistry and to have obtained the first degree.

The man with only the knowledge of chemistry absorbed by concentrating on the subject for one year, with no acquaintance with the allied subjects, must meet the serious competition of the college man with a degree who is also willing to start at the bottom. However, in the face of this and the other difficulties which have been touched upon, the exceptional man with little education may succeed. Many examples of the self-made man could be given. Success under the handicap of poor schooling may be attained by the exceptional man who is willing to apply himself and with the daily experience get the required education. Personality, the ability to get along with men, has much to do with any advancement.

TAXING GASOLINE-BENZOL BLENDS

If a mixture of gasoline and benzol contains over 50 per cent benzol, should it be classed as gasoline for road-tax purposes?—W. A. M.

I am under the impression that the various laws adopted for the purpose of collecting a tax, originally proposed to support the highways, are not worded in such a way that only gasoline will be taxed. It is intended that any fuel used as the source of power in a vehicle moving over the public highways shall be included. The substance commonly mentioned is motor fuel, so a benzol-gasoline blend would certainly come within the meaning of such a term.

When the tax is collected at the point of origin, without adequate check at the point of distribution and retail sale, there may be an opportunity to evade the tax to whatever extent benzol is present in the final mixture. An example of this has recently been corrected in Canada. An investigation by the Department of Highways, Ontario, revealed that mixtures of approximately equal quantities of benzol and gasoline were being sold as motor fuel. The gasoline tax in Ontario is 5 cents per gallon, so the dealers handling this blend had an advantage of 2.5 cents per gallon over dealers selling gasoline. The difficulty here appears to have been due to a faulty definition of motor fuel and also to the fact that Ontario did not have an inspection department. There was a blanket tax on all gasoline but a refund was made to those consumers who did not use the product in an automobile engine.

At the recent session of the assembly a definition for gasoline was adopted which has resulted in making a high benzol content fuel more expensive than gasoline. The price of benzol in normal times is usually about the same as gasoline, with a tendency for the benzol to cost a little more than a good grade of gasoline. At this time the price of benzol is considerably above that of gasoline. Under this law the cost of a 50 per cent benzol blend would be about one-half cent more per gallon. This definition is:

"Gasoline shall mean the liquid derived from petroleum or natural gas commonly known or sold as gasoline, benzol, and all other liquids by whatever name known or sold, containing any derivative of petroleum or natural gas and produced, prepared or compounded for the purpose of generating power by means of internal combustion or which may be used for such purpose, except the product commonly known as kerosene oil."

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

RECONDITIONING ROTARY MUD

Why can't mud that has been used in rotary drilling be used over and over again? In some fields this mud represents a heavy expense. It seems as though some process might be developed for avoiding the waste that exists now in the practice of using mud for drilling a well and then, unless it is a dry hole, leaving it in the slush pit to dry out.—N. S. T.

Modern rotary practice contemplates the reclamation of that type of rotary mud to which has been added valuable admixtures. On some leases in the Hobbs, New Mexico, Field, it is reported that $10,000 to $15,000 worth of mud was recovered from one well and used in drilling three others.

The study of mud handling at the well has progressed to that point where it is possible to obtain equipment for any kind of plant that may be desired, from a simple screening outfit that will recondition the mud by removing the coarse cuttings, to the elaborate types of complete mud reconditioning plants using settlers and thickeners, and usually designed to serve a number of wells.

In the Hobbs Field one company used vibrating screens so placed at the derrick as to receive all of the mud as it left the well and removed from it the coarser cuttings. This treatment permitted the driller to have good control of the weight of his mud at all times, and was quite effective in reconditioning "gas cut" mud. Some muds that weighed 12 pounds per gallon when they went into the hole came out of it weighing only about 6 or 7 pounds per gallon and it was necessary that its weight be built up again before it could be used.

Using the screen at one well for this type of work suggested the idea of reclaiming mud that had been used in other wells and left in the slush pits to dry out. The mud was mixed with water and then pumped over a vibrating screen. The cuttings thus were removed and the reconditioned mud then was pumped to drilling wells where it was used satisfactorily and saved the company money because it did not have to buy costly admixtures.

The Oil and Gas Journal has carried several articles within the last year on rotary muds and equipment used in handling it and in the October 16, 1930, issue it had five articles that covered a wide range in this problem. They should be of interest to you if you are having mud problems.

POSITION OF DISCOVERY WELL

We would appreciate it if you would inform us as to the distance from the original test well that the oil field extends when drilled up in the original oil field. Is it not true that in many cases the oil does not extend more than half a mile in certain directions, while in others it might go as far as 3 or 4 miles?—D. S. M.

There are no average conditions applying to the size or shape of an oil field. The discovery well may be located in the center of the pool, at the edge or any other spot in it.

With modern applied geology and the use of geophysical instruments, however, it is possible closely to determine the size and shape of the underground structure in which oil or gas may be found. With such data at hand it is possible so to locate the original test well on this structure as to make it a central point for development of the maximum amount of information about the pool. With the discovery well drilled near the center of the field other locations would be made designed to work gradually toward the limits of the pool.

You may have in mind the fact that many pools have been discovered by wells drilled near one edge of the formation. This happened in the old Glenn Pool, Oklahoma, where it later was proven that the discovery well was just within the producing area of the sand. The offset well in one direction was a dry hole.

Modern practice eliminates such occurrences and it is possible to locate the test well in the most advantageous position and later, if it proves to be productive, drill wells to develop the whole pool to the best advantage and produce the oil with maximum efficiency. Such practice was not followed in the new East Texas pools but in the Van Pool good engineering has been followed since the first test was located and it is being developed in an orderly and economical manner.

WHAT DOES BOTTLE WEIGH?

Can you tell me the difference between the weight of a filled oxygen bottle and an empty one?—C. E.

This department is informed by the Linde Air Products Co. that a full oxygen container weighs 150 pounds and when emptied weighs 130 pounds. The difference, or 20 pounds, represents the weight of the oxygen in the container under a pressure of 2,000 pounds per square inch.

Oxygen has a weight of .08921 pound per cubic foot at 32° F. and at atmospheric pressure. Expressed in another way, 1 pound of oxygen at atmospheric pressure and 32° F. will occupy 11.209 cubic feet. As the container will hold 220 cubic feet of oxygen under a pressure of 2,000 pounds per square inch, it follows that this amount of oxygen at atmospheric pressure will weigh:

$$220 \times .08921 = 19.6262 \text{ pounds,}$$

which is a close check on the weight given above.

MIGRATION OF PETROLEUM

When oil is referred to as a migratory substance, is it meant that it may travel from one point to another but always remaining in a certain sand, or does it mean that it may move from one sand to another? For instance, is it possible that oil now in the Wilcox sand may have been in some other sand in an earlier geological period? Is what is known as the cap rock always of the same composition? Can oil penetrate it under any conditions? Does the gravity of the oil have anything to do with its movements?—S. O. D.

Ordinarily, the movement of oil within the confines of a certain sand is meant when its migration is referred to, but under certain conditions the oil may escape from one stratum to another. In his work on "Practical Oil Geology," Dorsey Hager says:

"Oil strata are overlaid, or capped, and underlaid by strata practically impervious to oil. These beds may consist of compact shales, hard, closely cemented sandstones, and compact limestone. In all cases the overlying strata must be tight enough to effectually seal in the oil. Where the strata have been eroded, leaving exposed sands, the more volatile oils will escape unless asphaltic or paraffin deposits coat the faces of the strata, and act as seals to keep in the remaining oil.

"However, there are conditions where oil may work its way upward through the overlying beds. Also were it not for the compact, overlying beds, water would work its way downward from the surface of the earth and flood the oil strata.

"It is just as essential to have a compact underlying bed of material to retain the oil as it is to have a capping. If it were not for such beds the oil would gradually escape downward from the stratum in which it originally occurred. It seems highly probable that such has been the case in some instances. However, water in the lower beds would stop migration, for petroleum will not escape through a rock saturated with water. This applies whether or not the water stratum is above or below the oil stratum. In such saturated rocks the water is held by friction and capillary attraction to the small grains of sand and the oil has not sufficient pressure to overcome these factors. If for any reason the rocks below lose their water the oil under some conditions travels downward.

"Oil is not generally indigenous to the formation in which it is found, but has migrated from other formations. The migration, or travel, of petroleum from one formation to another undoubtedly affects its specific gravity.

"Petroleum is a mixture of hydrocarbons, each having different specific gravities. If petroleum occurs in a sand, portions of it may work upward or downward through the capping above or the bottom formation underlying the sand. If the cappings or bottoms are very fine grained, only a very small propertion of the hydrocarbons will escape. If shale overlies the sand the lighter part of the hydrocarbons will work its way through the shale to the strata above. The heavy constituents will be left in the sand below, some lighter constituents will be found in the shale, and still lighter constituents in the formations above. If the migration is downward, the oils below will be lighter than those above.

"A very thick oil will not penetrate fine-grained clay or shale, so there is a limit to the amount of petroleum that will escape from the original formation. Where there are faults or breaks in the formations, allowing the escape of hydrocarbons from deep-lying carbonaceous formations to overlying strata, the lighter constituents may escape from the lower beds and be found above. Water ascending along these fault planes may carry the petroleum with it. Necessarily the petroleum that is mixed with the water will be heavier than the original petroleum."

WHY WAS IT CALLED THAT?

SPRING-POLE

Many early wells along Oil Creek in Pennsylvania were "kicked down" with a spring-pole, a rude device which appealed to pioneer prospectors with strong muscles and weak purses. A pliable pole of ash or hickory 12 to 20 feet long rested on an upright post set near the center and serving as a fulcrum. The butt of the pole was anchored outside a primitive derrick. The small end extended into the derrick, where the drilling tools were fastened to it. Loops or straps were suspended from the extreme end of the pole inside the derrick and the drillers operated the device by putting a foot in these and executing a wearisome treading motion. A downward kick sent the drill smartly against the rock and the elasticity of the pole raised it for the next blow.

DUTIES OF PLANT STOREKEEPER

It has been my intention to enter the oil business, but of course jobs are scarce right now. I have a chance to take a job as warehouse man on a lease, but I had hoped to get work in the production end. Can you give me an idea of the duties of warehouse man? Would the job help in preparing a man for work in the production department?—O. N. Y.

A job as warehouse man should make it relatively easy for you to become familiar with all kinds of work about the lease, for the reason that the warehouse man often is expected to be a sort of pinch hitter and handy man. With the conditions that exist in the oil industry at this time he is likely to be called on to help in repair work, pulling jobs, cleaning out wells, etc., and to make himself generally useful.

The precise duties pertaining strictly to the warehouse are enumerated as follows by C. F. Wilson, supervisor of stores for the Lone Star Gas Co.:

The warehouse man should have a thorough knowledge of the materials which he is to handle, and the purposes for which they will be used.

He should command the respect of the men who draw material from his storeroom, and thereby gain their hearty cooperation.

He should understand the rudiments of accounting and should study the accounting system of his company, knowing the difference between operation, maintenance and construction costs.

He should see that his warehouse is kept clean and neat in appearance and his records filed in an orderly manner.

He should familiarize himself with all forms pertaining to the company's operation. This applies to all departments as well as his own.

He should have a thorough working knowledge of his stock, keeping same to the minimum as nearly as possible.

He should know from which concerns the best prices can be obtained in his locality.

Summary of Situation at Mid-Year

By W. T. ANDERSON

The oil industry is far from being in as bad shape as many have been saying.

During the first half of this year, as shown in this Semi-Annual Number of The Oil and Gas Journal, really remarkable progress has been made towards correcting conditions although fear of unbridled exploitation in East Texas prevented the industry as a unit from securing the benefits its efforts entitled it to expect.

There was the greatest curtailment in production of both crude oil and refined products of any similar period in years.

But there was also the lowest prices for any twelve months period, for both crude and refined products that the industry had ever experienced.

There is good ground for hope that these two records will be reversed during the coming half year because conditions which these low prices and low production have produced are aiding to bring about an improvement in prices during the next few months which in turn should permit a return to more normal operations in all phases of the industry.

Crude oil production for the half year totalled 415,774,190 barrels or 53,119,423 barrels less than for the first half of 1930. Production for the twelve months ending June was 139,000,000 barrels less than for the twelve months ending June last year.

Crude runs to stills were reduced during the five months for which government figures are available from 396,910,000 barrels in the like period of 1930 to 362,098,000 barrels this year.

The total new supply of all oils declined from 455,441,000 barrels a year to 405,097,000 barrels for the five-month periods of the two years.

The total demand for crude oil has ostensibly been greater than the available supply so that on June 1 stocks which had been 533,491,000 barrels a year ago are now 495,122,000, a decrease of more than 38,000,000 barrels.

Including refined oils, stocks decreased from 700,412,000 barrels on June 1 last year to 656.212,000 barrels on the same date this year, a decrease of over 44,000,000 barrels.

This was accomplished notwithstanding the fact that during this entire period there was potential production largely in excess of requirements.

Had it not been for East Texas there is every reason to believe that an even better record in keeping production in line with demand would have been made.

East Texas is an illustration of the havoc that can be wrought by a single area when there is no control and development is dominated by interests that have only minor investments in the oil business. The same thing can happen from time to time in the future unless precautions are taken to prevent it.

Yet it can now be seen that the significance of the chaotic condition in East Texas was over-emphasized in the markets, with the consequence that the industry as a whole was deprived of the reasonable results it was entitled to expect from its curtailment.

It requires no additional proof that the industry failed to get prices necessary for adequate remuneration when it sold its principal grade of gasoline for an average price of less than 3½ cents, Oklahoma basis, over the first six months of the year with a corresponding decline in return in all its other main products and an average price of 67 cents for 36-37 gravity crude in the Mid-Continent.

It seemed to have been overlooked for the moment that there could be such a thing as a price so low that it would check sales, that there was an irreducible minimum below which production could not exist.

When that point was reached and demonstrated the oil industry had touched bottom. Conditions had to improve if the business was to continue.

Just before the close of the half year there were evidences that the industry was righting itself from the marketing angle and with the continuance of sane operations for the last half of the year there is every cause to hope that the refining branch can recover at least a part of its marketing losses in the earlier six months.

In the production division the half year records a large falling off in completions and in the number of oil wells but a large increase in initial production due to very large wells in the Oklahoma City field and in East Texas. The six months, in fact, show the largest average initial production per well in the history of the industry, 1,383 barrels, contrasted with but 604 barrels per well during the same period last year.

Although there has been some decrease in demand for most products the oil business certainly has no complaint in this regard when gasoline consumption is compared with the consumption of the products of other major industries for the first six months.

Domestic consumption of gasoline was practically the same as for the first half of last year which means that during this year of acute general depression the demand for the principal product of the oil industry is running from ten to 12 per cent above the demand during the boom year of 1929.

Exports of gasoline, due to foreign competitive conditions, have declined approximately 25 per cent but this decrease is of minor importance when the domestic record is considered.

By curtailing their output, American refiners by the middle of July had but 37,770,000 barrels of gasoline on hand at their plants which compares with 45,937,000 barrels at the same period last year.

Fuel and gas oil stocks are approximately 7,000,000 barrels less with a decrease of almost 30 per cent in kerosene stocks.

Surely an industry with this statistical position should be able to at least start on its way out of the woods during the coming half year.

The American Petroleum Institute Committee on Refinery Statistics and Economics, in its report just issued, foresees an improvement in demand during the next six months.

Instead of any decline in the demand for gasoline it predicts an increase of 3.7 per cent over the corresponding period of 1930. This increase is based on an estimated 5.7 per cent increase in domestic consumption and a decline of 10 per cent in exports.

Recognizing the trend in increased recovery of gasoline and from other sources than crude oil the committee figures a 2.4 per cent decline in demand for crude although estimating a 6 per cent gain in exports of crude, due presumably to low prices in this country.

This is not a period for undue optimism but it would be unwise to overlook the constructive factors at work within the industry and what they have been accomplishing towards stabilizing production and demand, particularly during the past six months, in the face of the East Texas stampede.

The liquidation of excess stocks, the lesson learned by producers and refiners from the experience of reckless production in East Texas forcing prices down to a worthless level, and the indications of a better demand at a living price during the remainder of the season encourage the hope of substantial improvement from now on.

It has taken the industry in general a long time to get away from the idea that production meant profit, hunting for the pot of gold at the end of the rainbow. More progress was made, except in East Texas, towards actual stabilization of operations during the past six months than ever before. More attention is being given to the limitations of requirements on production and the need for getting a return on the investment, essentials in any permanent prosperity.

That sounder attitude on the part of the bulk of producers and refiners is going to help materially towards eventual recovery during the next half year.

Record Established on Pacific Coast

Deepest Oil Well in World and a New Casing Record Made in California. General Conditions Unsettled

By L. P. Stockman
Staff Correspondent, California Fields

Conditions on the Pacific Coast were very unsettled during the first half of the current year due principally to uneconomic competition among marketing companies and the failure of operators to curtail production of crude oil in the Playa Del Rey Field, together with ineffective curtailment in other areas. There were other contributing factors, of course, not the least important of which were the evasion of gasoline taxes by independent refiners for the first three months of the year and the indiscriminate sale at cut prices of an inferior motor fuel consisting of a gasoline-kerosene blend. This unstable condition resulted in drastic reductions in the price of crude and refined oil and caused severe financial losses to both producers and refiners. The gasoline price war, which has become somewhat of an annual affair, started a little earlier than usual this year and reached a greater degree of intensity than any of the previous competitive bids for gallonage.

The price war started on February 25, 1931, when the Standard Oil Co. reduced prices of gasoline 2 cents per gallon, and subsequent reductions by this and other marketers ultimately brought the retail price down to 8½ cents per gallon tax paid. The drastic reductions in gasoline prices, due to intense competitive conditions, led to a somewhat comparable cut in crude oil price schedules with the result that refining crude was quoted for several weeks at 35 cents per barrel. The Union Oil Co., following sound economic principles, reduced the price of crude oil approximately 40 cents per barrel on March 10, 1931, and when the price of gasoline declined still further, made additional cuts in crude oil quotations on March 15 and March 30, 1931.

Price Increases in June

Prices of crude and refined oils were partially restored on June 19, 1931, when the Union and Standard increased tank wagon prices of gasoline 5½ cents per gallon simultaneous with an increase of approximately 25 cents per barrel for the average grades of refinable crude. Gasoline prices on the Pacific Coast are still very unsettled, however, despite concerted attempts to stabilize tank wagon prices around 13 cents per gallon. Crude oil quotations have become a little firmer but will be reduced again unless gasoline prices stiffen. Crude oil and gasoline are both selling considerably below prices prevailing at the close of 1930. Thirty gravity Long Beach crude commands a price of 81 cents per barrel at the present time, as compared with $1.38 at the close of last year. Other fields have experienced comparable reductions. The so-called "upside down" crude oil schedule made its appearance on March 30, 1931, when the Union Oil Co. reversed the usual order and graded prices downward from the base price of 14 degrees instead of upward. Under this schedule high gravity crude was bringing less than heavy unrefinable fuel oil. This schedule, on the basis that fuel oil prices remained firm in the face of declining prices for gasoline, continued in effect until June 19, 1931, at which time major buyers restored the normal schedule which grades prices upward from the base price.

A recent check revealed the fact that over 100 producers and refiners operating on the Pacific Coast have become involved in financial difficulties during the past six months due to disastrous town lot drilling in the Playa Del Rey Field and the gasoline price war which has prevailed on the Pacific Coast since the first of March. A number of other independent refiners would have likewise been placed in receivership if they had paid their gasoline tax of 3 cents per gallon on all gasoline sold for the first three months of 1931. By evading this tax, cash resources were conserved and thus the companies remained able to continue operations. State officials subsequently negotiated contracts with delinquent refiners whereby the State will be repaid at the rate of 4 cents per barrel for each barrel of crude oil charged to stills until the tax is liquidated.

Deep drilling was an important factor in California during the first six months of the current year and this work resulted in the establishment of three new world's records. The outstanding records set up by California operators include the world's deepest hole, the world's deepest producer and the successful landing of the longest string of 13⅜-inch pipe used up to the present time. The Chanslor-Canfield Midway Oil Co. established the new deep drilling record when it concluded drilling operations on No. 2-A Hobson at 10,030 feet preparatory to making a production test. Unfortunately this deep well, located about midway between the Ventura Avenue and Rincon Fields, failed to register commercial production. The hole is in excellent condition and can be carried on down if the company decides to do so.

World's Deepest Oil Well

The Associated Oil Co. completed the deepest commercial producer in the world on April 28, 1931, when No. 57 Lloyd was brought in flowing 5,282 bbls. of clean 29.5 gravity oil and 4,204,000 feet of natural gas per day from 8,823 feet. The bit in this well, which is 800 feet deeper stratigraphically than any other well finished at Ventura Avenue up to the present time and has a penetration of 4,878 feet below the base of the Gosnell shale, was still in the pay when drilling was concluded. This well, in addition to having the distinction of being the world's deepest producer, is credited with having discovered a new oil zone in the Ventura Avenue Field. No. 57 Lloyd was started on April 22, 1930, and required one year and six days from spud to completion. During the course of work, 1,800 feet of formation was carefully cored, the last 500 feet being cored solidly. The pipe record consists of 998 feet of 20-inch, 4,997 feet of 13⅜-inch, 7,139 feet of 9-inch and a 5-inch 500-foot slotted liner from 7,015 feet to bottom at 8,823 feet.

The Associated's geological department, with characteristic modesty, reports that "based upon the evidence of oil and gas shown in drilling and the core record of the well, production is coming particularly from the lower 500 feet of formation. The complete penetration of the zone has not been established in this well, but the 500 feet of new formation has been proven of sufficient thickness to entitle the new discovery to definite segregation and development. In size this well compares favorably with the best wells secured by the Associated Oil Co. in the Ventura Avenue Field." The Associated's No. 57 Lloyd, flowing 5,282 bbls. per day from 8,823 feet, is not quite as deep as the Big Lake Oil Co.'s

CALIFORNIA FIELD OPERATIONS BY DISTRICTS FOR FIRST HALF 1931

	Oil wells completed		Oil wells*		Abandoned		New
Northern—	Number	Bbls. daily	Drill'g	Prod'ng	Drlrs.	Prodrs.	Rigs
Buttonwillow Gas Field	...	.....	1	....	1	...	...
Coalinga	...	.....	...	702	1	1	1
Elk Hills	...	.....	...	209	...	3	...
Fruitvale	...	.....	...	18	...	...	1
Kern River	3	425	1	904	...	...	1
Kettleman Hills	11	84,126	18	11	...	...	3
Lost Hills-Belridge	2	7,425	10	166	3	3	4
McKittrick	...	.....	...	206	...	10	...
Midway-Sunset	5	785	3	1,805	2	10	1
Mount Poso	6	1,125	1	64	...	...	7
Round Mountain	1	225	1	2	3	...	3
Wheeler Ridge	...	.....	...	34	...	2	...
Total	28	94,111	35	4,121	11	29	21
Coastal—							
Capitan	1	215	2	2	1	...	
Elwood	2	11,190	1	43	1	...	2
Rincon	1	927	3	32	...	1	1
Santa Barbara	3	590	1	3	1	1	4
Santa Maria	2	1,250	1	175	2	4	1
Summerland	...	.....		97	2	...	...
Ventura Avenue	21	29,054	13	144	...	...	8
Ventura-Newhall	3	475	7	413	16	1	7
Watsonville	...	.....	...	6	...	...	...
Total	33	43,701	28	915	23	7	23
Southern—							
Coyote	2	365	4	174	...	...	4
Domingues	1	3,500	1	59	2	...	...
Fullerton	1	50	2	355	...	1	...
Huntington Beach	2	490	2	375	...	2	3
Inglewood	3	860	1	208	...	...	1
Lawndale	...	.....	...	7	...	...	1
Long Beach	27	12,627	27	890	16	9	12
Los Angeles-Salt Lake	...	.....	...	261	...	...	...
Montebello	...	.....	...	168	...	...	...
Newport	1	30	1	4	...	...	1
Playa Del Rey	58	29,990	18	167	4	3	16
Potrero	4	1,586	1	16	2	4	1
Richfield	...	.....	...	162	...	8	...
Rosecrans	1	50	1	91	1	3	2
Santa Fe Springs	2	1,010	1	460	1	6	4
Seal Beach	...	.....	2	116	...	6	...
Torrance	4	380	1	435	...	11	1
Whittier	...	.....	...	168	...	1	...
Miscellaneous drilling	...	.....	140	....	59	...	60
Total	106	50,938	202	4,116	85	54	106
State total	167	188,750	265	9,152	119	90	150

*Monthly average.

CALIFORNIA

PRODUCTION OF CRUDE BY DISTRICTS, JANUARY TO JUNE, INCLUSIVE, 1931

Districts—Northern fields—	January	February	March	April	May	June	Total
Coalinga	275,559	245,324	266,491	252,521	262,644	258,587	1,561,126
Elk Hills	459,038	410,610	453,465	446,137	453,170	408,875	2,631,295
Fruitvale	64,203	59,019	63,743	72,087	70,406	68,460	397,918
Kern River	335,500	311,916	331,010	339,367	350,161	317,396	1,985,350
Kettleman Hills	691,096	751,974	805,029	783,962	1,189,446	1,750,652	5,972,150
Lost Hills-Belridge	200,535	182,400	202,869	172,557	190,787	295,494	1,244,642
McKittrick	114,890	104,741	112,336	110,607	61,831	50,870	561,275
Midway-Sunset	1,650,788	1,492,641	1,632,322	1,618,479	1,650,439	1,523,335	9,568,004
Mountain View	.....	.....	.....	.....	.....	.....	.....
Mount Poso	235,602	210,303	232,852	228,366	245,333	253,704	1,406,151
Round Mountain	10,178	6,388	6,825	6,360	8,575	10,298	48,504
Wheeler Ridge	17,240	15,001	16,604	15,799	16,597	15,663	96,904
Coastal fields—							
Capitan	21,486	19,078	2,619	.....	.....	.....	53,183
Elwood	1,022,024	871,074	1,078,562	1,067,909	1,082,218	872,444	5,994,231
Rincon	72,908	60,966	68,623	58,800	59,514	56,788	377,599
Santa Barbara	7,161	9,800	5,515	9,960	17,120	4,800	54,350
Santa Maria	77,762	72,709	79,728	81,000	93,119	95,130	499,448
Summerland	8,188	4,713	4,714	5,000	5,073	4,925	32,613
Ventura Avenue	1,347,525	1,251,396	1,386,281	1,344,816	1,348,734	1,243,366	7,922,118
Ventura-Newhall	128,724	108,787	111,403	110,275	116,854	112,690	688,733
Watsonville	1,937	1,750	1,938	1,908	1,937	1,875	11,345
Southern fields—							
Coyote	305,318	292,387	324,003	310,215	310,168	299,916	1,842,007
Domingues	306,656	330,788	368,858	355,019	358,913	340,242	2,060,506
Fullerton (Brea Olinda)	329,648	291,681	331,474	301,638	310,259	291,867	1,856,567
Huntington Beach	706,862	601,953	685,876	653,210	667,536	616,884	3,932,321
Inglewood	478,877	428,453	471,702	458,023	499,862	436,207	2,703,114
Lawndale	10,009	8,479	8,139	10,374	9,326	13,928	60,855
Long Beach	2,877,291	2,657,598	2,788,994	2,637,562	2,665,528	2,398,683	16,025,656
Los Angeles-Salt Lake	43,821	40,313	44,325	43,290	42,095	39,108	252,952
Montebello	215,612	198,421	221,956	214,333	217,156	198,725	1,266,203
Newport	1,235	1,120	1,141	1,117	1,051	172	5,836
Playa Del Rey	1,103,265	941,431	972,752	921,531	901,554	800,469	5,614,002
Potrero	33,678	24,191	22,358	18,542	17,019	39,925	155,713
Richfield	211,410	196,123	211,211	204,110	212,954	205,774	1,241,582
Rosecrans	140,523	134,485	123,986	114,641	115,650	104,713	733,998
Santa Fe Springs	2,222,519	1,995,081	2,204,480	2,149,409	1,233,232	1,963,938	12,768,659
Seal Beach	521,660	418,388	490,778	457,790	428,770	336,512	2,653,898
Torrance	181,945	168,269	187,434	189,929	192,719	172,518	1,092,814
Whittier	43,034	38,171	42,455	36,368	41,280	40,503	241,751
Total	16,485,738	14,930,932	16,364,842	15,803,541	16,448,960	15,641,436	95,675,449

No. 3-C University, which showed an initial of 170 bbls. daily from 8,923 feet, but takes foremost rank because of its commercial aspect. It might not be amiss to mention that many successful producing wells will be finished below the 9,000-foot level in the Ventura Avenue Field when this new prolific horizon is developed at some future date. It is rather difficult to estimate the potentiality of this new deep zone on the limited data available but, knowing the high recovery per acre at Ventura Avenue, I do not hesitate to venture the opinion that the reserves of the Associated and Shell have been increased at least 50,000,000 bbls.

Another World's Record

The new world's record for 13⅜-inch pipe was established by the North American Oil Consolidated at Kettleman Hills when it successfully landed and cemented 6,723 feet in No. 1 Blauvelt. No difficulty of any kind was experienced in landing this pipe despite the fact that the dead weight, approximately 217 tons, placed an unusually heavy strain on the rig and other equipment used. This long string was run in and cemented and the job completed in 18 hours and 35 minutes and the only extra equipment required was a special pump which was used to handle the cement. It required 35 minutes to mix and pump the cement into the hole and another hour and 30 minutes to force it up around in back of the casing. The 6,763 feet of 13⅜-inch casing landed in No. 1 Blauvelt constitutes the longest string of this size ever run in a California well and is believed to have set a record for the world in general to shoot at. The necessity of using such large pipe is due to the fact that this project will probably have to be carried down to around the 9,000-foot level before completion. In addition to the depth required to reach the deep Ochsner zone, the Blauvelt property is located rather far out on the north flank so that the well is stratigraphically lower than any producer finished in that field up to the present time.

The California state legislature enacted several bills this year affecting both the producing and marketing branches of the oil industry. Only one of these measures went into effect during the first half of the year, but the remainder will become effective early in August. Statutory regulations establish the effective date of legislation as 60 days after signature of the chief executive. One of the bills passed during the last legislative session carried an emergency clause, however, and thus became effective at once. This was Senate Bill No. 675 designed primarily to prevent tax evasion and safeguard the interests of the State. This was accomplished by requiring marketers to post a sufficient bond to protect the State against loss and by requiring the payment of gasoline taxes monthly instead of quarterly, as heretofore. The bill also, among other things, provides for the collection of the usual 3-cent tax on all motor fuel including casinghead gasoline, kerosene distillates and any other products used in internal combustion engines.

Assembly Bill No. 513 is another measure which will affect the marketing branch of the oil industry when it becomes effective August 15, 1931. This bill is designed to prevent fraud or misrepresentation in the distribution and sale of gasoline or any other motor fuel, distillate, kerosene and lubricating oil. It regulates the distribution and sale of such products, makes provision for enforcement work, provides a definition for gasoline and prescribes specifications for other products sold as gasoline. It provides a definite specification for motor vehicle fuel for the first time in the history of California, following in general an existing ordinance of Los Angeles, setting up specifications for gasoline sold within the limits of this city, and provides definite requirements concerning the labeling of pumps, tanks, trucks and other containers for gasoline, lubricating oil and any other product used in internal combustion engines.

The most important legislation from a production standpoint was Senate Bill No. 362 introduced by Senator Will Sharkey of Martinez County and subsequently endorsed by Governor Rolph. Briefly, this measure prohibits overproduction of crude oil by limiting production to actual requirements. It also contemplates the liquidation of present excessive stocks of crude and refined oils, creates an oil conservation commission and provides the machinery necessary for enforcement of the bill. Referendum petitions to prevent enforcement of the Sharkey bill were circulated subsequent to the enactment of this measure and approximately 100,000 signatures were secured. If 69,257 valid signatures of registered voters have been secured this referendum petition will render the Sharkey Bill inoperative until the next general election in 1932, unless the governor calls a special election.

Senate Bill No. 363, another bill passed at the last session of the legislature and likewise signed by Governor Rolph, prevents future town lot drilling by prohibiting the drilling of any new well within 100 feet of a public road, street or highway or within 150 feet of any well already started or within 100 feet of the outer boundary of the land on which the well is located, except where the lease contains more than one acre, in which event if the property is less than 250 feet in width, not more than one well may be drilled to each acre. This does not apply to existing fields but will prevent town lot drilling in any future field. Assembly Bill No. 1,444, which abolished the office of the state oil and gas supervisor and merged it with the oil and gas commission created by Senate Bill No. 362, was vetoed by Governor Rolph and is therefore of no immediate concern. Assembly Bill No. 4, which contemplated transferring the State's title to tidelands at Huntington Beach so that this municipality might sublease this submerged property for oil development, was likewise vetoed. Governor Rolph vetoed this bill because of the possibility that tideland drilling at Huntington Beach might pollute adjacent bathing beaches and also because of existing overproduction of crude oil. A number of other minor bills affecting the oil industry were passed at the last session of the California legislature but they were not of primary importance.

Kettleman Hills Progress

A consistent increase in the production of Kettleman Hills during the first five months and a substantial gain recorded in June was one of the outstanding developments in California during the first half of 1931. Production of this field went still higher early in July and, unless something unforeseen develops, production of the north dome during the last six months of 1931 will greatly exceed the output of the first half year. The Capitan Field of Santa Barbara County started off the current year with a production in excess of 1,000 bbls. per day but was completely shut down on March 3, 1931, with the result that it did not appear in production tables for April, May or June. Because of curtailment work, this field only

(Continued on Page 130)

CALIFORNIA POTENTIAL DAILY PRODUCTION—1930-31, INCLUSIVE

	Marketable daily production	No. of wells producing	Curtailed: Daily production	Curtailed: No. of wells	Total potential: Daily production	Total potential: No. of wells
1930—						
January	709,137	10,386	308,870	4,358	1,018,007	14,744
February	745,916	10,180	236,846	4,640	982,762	14,820
March	635,483	9,533	262,796	5,274	898,279	14,807
April	626,625	9,589	291,437	5,483	917,062	15,072
May	614,337	9,443	270,123	5,592	884,460	15,035
June	600,693	9,446	282,283	5,631	882,976	15,077
July	606,517	9,440	286,343	5,668	892,860	15,108
August	605,499	9,497	297,524	5,710	903,023	15,207
September	599,477	9,543	306,918	5,719	906,395	15,262
October	588,518	9,523	298,583	5,766	887,101	15,289
November	603,648	9,547	291,607	5,792	895,255	15,339
December	573,765	9,454	293,622	5,865	867,387	15,319
Daily average	624,931	9,632	285,579	5,466	910,510	15,098
1931—						
January	531,798	9,387	301,391	5,960	833,189	15,347
February	533,248	9,295	291,132	6,029	824,380	15,324
March	527,898	9,125	292,820	6,311	820,718	15,436
April	526,785	9,130	284,115	6,339	810,900	15,469
May	530,612	8,995	295,601	6,481	826,213	15,476
June	521,381	8,981	310,426	6,517	831,807	15,498
Daily average	528,594	9,152	295,978	6,273	824,572	15,425

CALIFORNIA FIELD OPERATIONS BY MONTHS FOR FIRST HALF YEAR 1931

	Wells comp.: No.	Wells comp.: Bbls. dly.	Wells: drilling	Wells: producing	Abandoned: drillers	Abandoned: producers	New rigs
1931—							
January	39	39,346	325	9,387	13	11	28
February	34	19,146	294	9,295	28	8	44
March	18	6,404	276	9,125	33	36	24
April	17	16,653	269	9,130	18	12	27
May	27	44,915	240	8,995	13	16	16
June	32	62,286	185	8,981	14	7	11
Total first half year 1931	167	188,750	...	....	119	90	150
Total first half year 1930	379	297,950	...	..	143	151	431
Total first half year 1929	473	706,362	...	....	134	125	765
Total first half year 1928	361	373,782	...	....	104	184	549
Total first half year 1927	531	314,141	...	...	171	147	635
Mo. av. first half year 1931	28	31,458	265	9,152	20	15	25
Mo. av. first half year 1930	63	49,658	440	9,763	24	25	72
Mo. av. first half year 1929	79	117,727	634	10,547	22	21	128
Mo. av. first half year 1928	59	45,630	454	10,961	17	31	92
Mo. av. first half year 1927	89	52,357	454	11,299	29	25	106

CALIFORNIA DAILY CRUDE OIL PRODUCTION BY DISTRICTS JANUARY-JUNE, INCLUSIVE

Northern Fields—Districts—	1931†	1930†	1929†	1928	1927	1926	1925
Coalinga	8,624	9,330	9,720	*16,073	*19,994	*20,375	*21,828
Elk Hills	14,538	18,469	17,879	*23,745	*30,063	*32,868	*37,417
Fruitvale	2,198	2,521	800	.....	.....	.....	.....
Kern River	10,989	16,680	15,979	*16,880	13,954	11,958	17,676
Kettleman Hills	32,995	13,722	3,568	.....	.....	.....	.....
Lost Hills-Belridge	6,876	3,203	4,427	*4,148	4,374	*4,507	*4,984
McKittrick	3,101	4,295	4,708	4,929	5,188	5,449	5,762
Midway-Sunset	52,842	68,272	69,157	*75,945	*90,118	*93,429	*103,462
Mountain View (Weed Patch)	.....	.....	.....	.....	.....	.....	.....
Mount Poso	7,769	11,808	1,419	*70	143	17	.....
Round Mountain	268	3,365	53	*158	33	.....	.....
Wheeler Ridge	535	611	716	929	1,055	980	947
Total Northern	140,735	152,276	128,426	141,877	164,922	169,583	192,066
Coastal Fields—							
Capitan	294	41	.....	.....	.....	.....	.....
Elwood	33,117	41,461	24,587	193	174	.....	.....
Rincon	2,086	3,003	3,433	1,802	.....	.....	.....
Santa Barbara	300	17	8	.....	.....	.....	.....
Santa Maria	2,759	3,326	4,645	*6,081	*5,014	*5,235	*7,459
Summerland	180	364	121	125	138	128	137
Ventura Avenue	43,768	48,796	56,519	*50,769	*47,575	31,244	14,271
Ventura-Newhall	3,805	5,013	6,260	5,854	5,971	6,019	6,252
Watsonville	64	63	62	58	57	58	58
Total Coastal	86,373	102,084	94,635	64,882	58,929	42,684	28,177
Southern Fields—							
Coyote	10,177	10,846	11,735	*13,679	*14,476	*16,887	*20,421
Dominguez	11,384	10,187	10,427	12,601	17,449	21,549	45,130
Fullerton (Brea Olinda)	10,257	12,945	13,195	*15,974	*21,537	*16,669	*11,579
Huntington Beach	21,725	32,685	45,207	55,857	80,110	44,800	42,239
Inglewood	15,266	18,885	24,918	30,228	37,066	52,943	14,592
Lawndale	336	413	1,071	.....	.....	.....	.....
Long Beach	88,540	101,690	181,316	147,691	93,202	109,755	114,395
Los Angeles-Salt Lake	1,398	1,537	1,500	1,553	1,779	1,845	2,040
Montebello	6,996	7,639	10,600	12,503	16,182	17,919	18,947
Newport	34	40	49	14	44	99	82
Playa Del Rey	31,017	1,425	.....	.....	.....	.....	.....
Potrero	860	1,699	680	188	.....	.....	.....
Richfield	6,860	11,263	16,565	19,663	21,107	13,178	*11,115
Rosecrans	4,055	6,800	6,514	6,920	10,956	19,459	16,321
Santa Fe Springs	70,545	143,226	181,430	37,544	43,435	49,090	51,303
Seal Beach	14,662	25,096	40,405	39,072	34,391	.....	.....
Torrance	6,038	11,989	14,205	18,722	24,419	29,638	39,002
Whittier	1,336	1,434	1,546	1,702	1,900	2,121	2,023
Total Southern	301,486	399,799	561,383	413,911	418,053	395,952	389,189
Grand total	528,594	654,159	784,444	620,670	641,904	608,219	609,432
Shut in	295,978	258,726	132,878	104,078	65,639	56,783	25,765
Potential output	824,572	912,885	917,322	724,748	707,543	655,002	635,197

*Additional production shut in. †All fields reflected crude oil curtailment during 1929-1930-1931.

PRODUCTION OF CRUDE BY MONTHS—CALIFORNIA OIL DISTRICTS

(Barrels of 42 U. S. Gallons)

Month—	1931: Total bbls.	1931: Daily. av.	1930: Total bbls.	1930: Daily av.
January	16,485,738	531,798	21,983,242	709,137
February	14,930,932	533,248	20,885,660	745,916
March	16,364,842	527,898	19,699,979	635,483
April	15,803,541	526,785	18,768,743	625,625
May	16,448,960	530,612	19,044,444	614,337
June	15,641,436	521,381	18,020,795	600,693
Total first half	95,675,449	528,594	118,402,863	654,159
July	.....	.....	18,802,024	606,517
August	.....	.....	18,770,466	605,499
September	.....	.....	17,984,306	599,477
October	.....	.....	18,244,053	588,518
November	.....	.....	18,109,459	603,648
December	.....	.....	17,786,728	573,765
Total last half	.....	.....	109,697,036	596,180
Total year	.....	.....	228,099,899	624,931

TOTAL FLUID STOCKS OF PETROLEUM HELD IN PACIFIC COAST TERRITORY (Bbls.)

1930—	Heavy crude and fuel	Refinable crude	Gasoline	Naphtha distillate	All other stocks	Total all stocks
Jan. 31	113,073,237	42,068,114	17,825,998	2,566,998	10,812,196	186,346,543
Feb. 28	113,687,953	44,341,155	18,747,359	2,494,887	10,427,369	189,698,723
Mar. 31	113,122,700	44,810,122	18,202,025	3,026,623	9,807,908	188,970,378
Apr. 30	112,198,691	44,475,703	18,038,274	3,184,353	9,295,738	187,192,759
May 31	112,777,460	43,749,958	18,635,346	3,022,565	9,546,205	187,731,534
June 30	113,036,486	41,863,482	17,103,762	2,992,918	9,345,604	184,342,252
July 31	112,250,064	41,831,069	16,443,388	2,875,767	8,855,657	182,255,945
Aug. 31	111,431,519	41,702,823	16,259,683	2,684,304	9,145,461	181,223,794
Sept. 30	110,959,288	42,207,292	15,906,323	2,492,093	8,868,255	180,433,952
Oct. 31	109,299,903	42,660,721	16,174,546	2,380,615	8,984,700	179,500,485
Nov. 30	109,410,308	42,691,166	16,755,344	2,598,914	8,855,038	180,310,770
Dec. 31	109,419,521	42,744,491	17,241,334	2,937,081	8,690,714	181,033,141
1931—						
Jan. 31	107,742,194	42,468,218	17,692,377	3,314,982	8,816,541	180,034,312
Feb. 28	106,524,024	42,650,026	17,686,477	3,378,904	8,701,407	178,939,838
Mar. 31	105,708,874	43,017,172	17,073,123	3,303,101	8,509,252	177,611,522
Apr. 30	105,844,270	42,928,028	16,975,380	3,191,183	8,213,504	177,152,365
May 31	105,316,997	43,453,961	16,209,373	2,923,505	7,808,464	175,712,300
June 30	104,416,375	42,521,954	15,388,862	3,036,807	8,052,316	173,416,314

Record Lows for Refined Products

Prices Decline Throughout First Half Year at Practically All Refining Centers. Decline in Exports Important Factor

By C. O. Willson

With a steady price decline during the entire period, several refined products at plants in United States at the end of the first six months of 1931 were selling at the lowest point in recent petroleum history.

For the most part, the first half year was a continuance of a price trend which got under way late in 1928. Although there have been rallies during this two and a half year period, average price trends on the principal products as shown in the accompanying table, have been downward. Despite the low prices in effect at the start of the year, price declines the first half of this year were more rapid in many products than during any similar period in several years.

At the start of the year it was thought that the worst was over in refinery prices and it was hoped that by spring at least a recovery would start. Refiners as shown by government monthly reports, greatly reduced their plant operations during the winter and spring months and this development brought a much more favorable stock situation than existed the year before. The uncertainty regarding the crude oil situation brought about largely by the rapid expansion of the new East Texas fields, coupled with an unfavorable export situation was reflected in the refinery market and there was no disposition on the part of refiners to either advance or maintain their prices. The slump was effective not only in principal products—gasoline, fuels and kerosene—but spread to the by-products and specialties, the decline in lubricants being outstanding.

Demand Less

The trouble was not entirely on the production side for consumption in several products was disappointing. Government data for the entire six months are not available at this time. For the first five months government figures show that gasoline shipments from refineries in this country dropped from 170,912,000 bbls. the first five months of 1930 to 165,628,000 bbls. this year, a decline of 3.1 per cent. The domestic demand for gasoline held up remarkably well, the decrease for the five-month period being less than 1 per cent. But exports dropped from 26,062,000 bbls. to 19,390,000 bbls., a decline of 25.6 per cent.

This decline in exports no doubt was more responsible for the decline in the gasoline market than any domestic situation. Russian and Rumanian oil interests were more active as competitors than ever before and the decline in exports from this country and the low prices prevailing are evidence that their efforts were successful. Coastal refiners consistently reduced their prices to meet export conditions and these were quickly reflected in the interior markets.

Refiners endeavored to keep their kerosene output in line with the demand but they were not able to prevent important price reductions. The refinery output for the first five months totaled 17,193,000 bbls., a decline of 23.2 per cent when compared with the 22,391,000-bbl. total for the first five months of 1930. Shipments for the two periods decreased from 23,102,000 bbls. to 18,116,000 bbls., a decrease of 21.6 per cent. This decrease was divided between 27.2 per cent decline in exports and a 19.2 per cent decrease in domestic demand. In this product also Rumanian and Russian competition was important.

No accurate figures on the consumption of fuel oil and gas oil are available. However, reports from representative areas show that the consumption declined so that there was also active competition in the sale of these products.

Refiners in an effort to bring about a more satisfactory market for lubricating oils following a general decline in 1930 reduced their output from 15,105,000 bbls. the first five months of 1930 to 11,350,000 bbls. the first five months of this year, a decline of 25 per cent. Exports dropped from 4,362,000 bbls. to 3,253,000 bbls., a decrease of 25.4 per cent and the domestic demand also declined 5.1 per cent. The shipments exceeded the curtailed output and stocks were reduced approximately 1,000,000 bbls. the first five months of this year.

The wax demand—both export and domestic—declined and this brought a continuance of price reductions. The same situation applied to most of the other by-products.

Gasoline

The gasoline situation for the entire country is accurately shown in the comparisons based on U. S. Motor gasoline in Oklahoma. The average price per gallon for that common domestic grade in Oklahoma, the first six months, was 3.35 cents. This compares with an average price of 6.88 cents per gallon for the first six months of last year and a yearly average in 1930 of 6.34 cents.

These prices compare with an average of 7.75 cents in 1929 and 7.95 cents in 1928 and an average price of more than 10 cents a gallon for the four-year period extending from 1923 through 1926. Starting the year with a high of 4¼ cents in Oklahoma, the U. S. Motor gasoline price declined to an all time low of 2⅛ cents the last half of June. In competitive Mid-Continent areas considerable gasoline sold under 2 cents late in June.

In the New York (Bayonne, N. J.) market the U. S. Motor grade brought an average price of 6.44 cents the first half year. This was a reduction of approximately 25 per cent when compared with the average price of 8.64 cents for the first half of 1930.

Pennsylvania refiners who secured an average price of 9.82 cents per gallon for their U. S. Motor gasoline in 1928 sold the same product the first half of this year at an average price of 5.46 cents. In California where the domestic market is more directly affected by crude oil and gasoline tank wagon price changes than in other parts of the country, U. S. Motor grade brought an average price of 4.81 cents with wide fluctuations. The same grade for coastwise and offshore movement brought an average price of 4.51 cents per gallon the first half year.

The drastic reductions in gasoline export quotations is indicated in the 5.42-cent price for the 64-66 375 endpoint grade at Gulf Coast points the first six months. The first six months of last year, the same grade brought an average price of 9.56 cents. This grade was quoted at a low of 3¾ cents at the end of the half year showing the efforts being made to regain a larger share of foreign business.

Natural Gasoline

Natural gasolines in all areas followed the trend in refinery gasolines. The principal grade in the Mid-Continent—AA—started the year at a price of 3½ cents and declined in June to a low of 1½ cents for an average of 2.41 cents. Last year the average price for the same grade was 5.24 cents and the year before 6.83 cents. Grade BB brought an average price of 2.08 cents the first half of 1931, with a low of 1¼ cents.

The 75-78 375-390 endpoint grade in California fluctuated between a low of 1¾ cents and a high of 5 cents, with an average of 3.7 cents.

Kerosene

The decline in kerosene consumption was brought about partially by general business and also the use of substitutes. The low prices prevailing for gasoline has caused many of the rural trade to substitute gasoline for kerosene as tractor fuel. There has been very little difference in the consumer price when the state gasoline taxes are subtracted from

AVERAGE PRICES ON REPRESENTATIVE CRUDE OILS AND REFINED PRODUCTS

OKLAHOMA—CRUDE OIL

	First half 1931	1930	1929	1928	1927	1926	1925	1924	1923
36 A.P.I. gravity, per bbl.*	$.67	$1.23	$1.37	$1.31	$1.38	$2.13	$1.87	$1.63	$1.56

OKLAHOMA—REFINED PRODUCTS

58-60 U. S. Motor Gasoline, per gal.	.0335	.0634	.0775	.0795	.0667	.1031	.1055	.0896	.0978
Grade A, 72-79.9, 375 e.p., rec. 90%, nat. gasoline, per gal.	.0314	.0536	.0706	.0744	.0585	.0946	.1202	.0866	.0913
41-43, water white kerosene, per gal.	.0262	.0358	.0517	.0517	.0461	.0727	.0445	.0449	.04
24-26 fuel oil, per bbl.	524	.7043	.706	.7694	.9792	1.3072	1.0908	.954	.9511
32-36 gas oil, per gal. (industrial)	.0143	.0227	.0265	.0247	.0299	.0419	.0368	.0291	.0266
200 vis., 3 color, 23-28 cold test neutral oil, per gal.	0944	.1059	.0966	.0947	.1032	.1072	.1139	.1308	.1317
124-126 wax, per lb.	.0185	.0216	.0321	.0394	.0294	.0471	.0516	.0446	.0254
150-160 D color bright stock	.1568	.2977	.3368	.2310	.....	.....	.....	.....	.....

PENNSYLVANIA—CRUDE OIL

	First half 1931	1930	1929	1928	1927	1926	1925	1924	1923
Crude oil in National Transit Lines, per bbl.	$1.77	$2.55	$3.69	$2.98	$2.87	$3.51	$3.50	$3.60	$3.33

PENNSYLVANIA—REFINED PRODUCTS

58-60 U. S. Motor gasoline, per gal.	0546	.0737	.0905	.0982	.09	.1273	.1348	.1224	.1352
43 prime white kerosene, per gal.	.0444	.0501	.0651	.0635	.0646	.0885	.0656	.0671	.0652
30-34 fuel oil, per gal.	.0295	.0386	.0441	.0449	.0477	.0591	.053	.0527	.054
Pennsylvania bright stock, per gal.	.1784	.3373	.4745	.3186	.3326	.3954	.3824	.3655	.3337

CALIFORNIA—CRUDE OIL

	First half 1931	1930	1929	1928	1927	1926	1925	1924	1923
25 A.P.I. gravity, Long Beach, per bbl.	$.82	$1.16	$1.05	$.96	$1 00	$1.37	$1.35	$1.06	$.74

CALIFORNIA—REFINED PRODUCTS

58-60 U. S. Motor gasoline, per gal.	.0481	.0806	.0849	.0919	.0873	.1134	Average prices on refined products for 1925, 1924 and 1923 on comparable basis not available.
75-78, 375-390 e.p., natural gasoline, per gal.	.0370	.0712	.0803	.0726	.093	.1465	
38-40 kerosene, per gal.	.0436	.0455	.0569	.0611	.07	.0745	
15-20 fuel oil at tidewater, per bbl.	.5673	.6346	.6724	.8892	.9221	.9813	

*Based on posted price for Oklahoma, Kansas and North Texas.

Note: Average prices on refined products are based on low quotations as published weekly in The Oil and Gas Journal. Crude prices are daily averages based on posted schedules of major buyers.

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the gasoline price. Gasoline used for agricultural purposes is usually exempt from the state tax. There has also been some substitution of gasoline for kerosene in lighting.

The principal domestic grade—41-43 water white—the oldest product of the oil industry brought an average price of 2.62 cents per gallon in Oklahoma the first half year. This price with allowance made for differences in freight rate costs between refineries and consuming points is representative of the price situation at all interior refineries throughout United States. In 1929 and 1928 this same grade brought an average price of 5.17 cents in Oklahoma.

In Pennsylvania, the same grade brought an average price of 4.44 cents the first half year. The North Texas average of 2.55 cents was probably the lowest of any of the larger refining centers.

In California a better price relationship with previous years was maintained, the average for the 38-40 grade being 4.36 cents per gallon. Last year the same grade brought an average price of 4.55 cents.

The prices on kerosene at the Gulf Coast for export movement remained fairly steady over the greater part of the half year. There was very little trading at any price so that the larger companies did not reduce their quotations. Toward the close of the half year the prices were lowered to the levels established by foreign competitive conditions. The average price for the 41-43 prime white grade was 4.09 cents and 4.99 cents for the 44 water white grade.

At New York the average price was 5.76 cents for the first half year. The price was reduced to 4¾ cents in June.

Fuels

Fuels, from the lowest gravity residual oils to the highest gravity furnace oils, were generally weak the first half year. In some areas, due to local conditions the price reductions for the first half year were relatively small but in the larger refining groups, the price declines reflected the condition of the market. The dearth of practically all classes of new fuel business resulted in large supplies being thrown on the open market at constantly lower prices.

Along the East Coast, the Bunker C price at New York dropped to $1.05 per barrel before the start of the new year. This was exceptionally low price for the product. Later in the half year, the price dropped to 95 cents and then in early June a price of 85 cents was posted. The average price was just under $1 per barrel. This is said to be the lowest average price for a half year since the marine trade became large users of fuel oil on the East Coast.

In Oklahoma (Group 3) the fuel oils below 18° gravity started the year at 40 cents and dropped to 25 cents for an average of 35.10 cents for the half year. These prices were for grades of average cold test. The higher cold test grades were from 5 to 10 cents per barrel cheaper. Sales of high cold test fuel oil in East Texas as low as 5 cents per barrel were made in June.

The demand for gas oils was generally slow throughout the half year. The price slumped rapidly with the end of the season of heaviest consumption. The U.G.I. grade sold for 2 cents per gallon at the start of the year in Oklahoma and dropped to .00¾ cent early in June. The average for the six months was 1.43 cents per gallon. Similar price conditions prevailed in other Mid-Continent areas.

The demand for the lower cold test gas oils, generally used as furnace oils, was fairly steady and with limited supplies the prices did not decline as much as in the case of the U.G.I. grade. Refiners in all areas were unable to maintain firm prices on their furnace oils which declined throughout the burner season with practically no demand at the low prices prevailing when the season ended. In Oklahoma a 38-40 straw furnace oil of low flash and low cold test which was available at 2¾ cents in January sold freely at a low of 1⅝ cents in May.

California fuel oils did not decline as much as in other parts of the country. For the bunker grades at tidewater the price fluctuated between a low of 55 cents and a high of 60 cents. The high sulphur content fuel oils which were not satisfactory for the marine trade brought from 20 to 30 cents per barrel in the Los Angeles Basin territory. Diesel oil was also steady along the West Coast, the California price for the first six months bringing from 70 to 80 cents per barrel.

Along the East Coast, Diesel oil was quoted at refineries and the principal terminals at $1.85 per barrel at the start of the year. Several price reductions were made so that at the end of the six months, the price was $1.55 per barrel. The average price was $1.7538 per barrel.

Lubricants

The price reductions at refineries in lubricating oils applied to all grades and all areas. Several manufacturers of neutral oils and the various grades of cylinder stocks sold practically all of their output through their own market outlets or to regular jobber customers and in these cases they usually did not make any substantial reductions in their quoted tank car prices. At the same time, refiners who were active in the spot market, found plenty of competition in both the domestic and export markets and prices slumped rapidly.

A Pennsylvania bright stock under 35 cold test which brought an average price of 47.45 cents per gallon in 1928 sold at

THE OIL AND GAS JOURNAL'S TABLE FOR FIRST HALF OF 1931 GIVING LOW WEEKLY AGE PRICES FOR FIRST SIX MONTHS OF 1931 AND THE YEARS 1930

	January				February				March				
GASOLINE AND NAPHTHA—	6	13	20	27	3	10	17	24	3	10	17	24	31
Oklahoma (Group 3):													
50-52 450 endpoint	.04	.04	.04	.04¼	.04¼	.04¼	.04	.04	.03¾	.03⅝	.03½	.03½	.03½
56-58 450 endpoint	.04	.04	.04	.04¼	.04¼	.04	.04	.03⅞	.03⅝	.03½	.03½	.03⅜	.03⅜
58-60 437 endpoint (U. S. Motor)	.04⅛	.04¼	.04¼	.04¼	.04¼	.04⅛	.04	.04	.03⅝	.03½	.03⅛	.03⅛	.03⅛
60-62 437 endpoint	.04⅛	.04¼	.04¼	.04¼	.04¼	.04⅛	.04⅛	.04⅛	.04	.03⅝	.03⅛	.03⅛	.03⅛
60-62 400 endpoint	.04¼	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04¼	.04	.03⅞	.03⅜	.03⅜	.03⅜
64-66 375 endpoint	.04¼	.04⅜	.04⅝	.04⅜	.04⅝	.04⅝	.04⅝	.04½	.04⅜	.04¼	.04¼	.04¼	.04¼
68-70 360 endpoint	.05	.05	.05¼	.05¼	.05	.05	.05	.05	.05	.04⅝	.04½	.04½	.04½
North Texas:													
58-60 437 endpoint (U. S. Motor)	.04	.04⅛	.04¼	.04¼	.04⅛	.04⅛	.04	.03⅞	.03⅝	.03⅜	.03⅜	.03⅜	.03⅜
60-62 400 endpoint	.04⅛	.04¼	.04⅜	.04⅜	.04⅜	.04¼	.04⅛	.04⅛	.04	.03⅝	.03⅜	.03⅜	.03½
64-66 390 endpoint	.04⅛	.04⅛	.04⅛	.04½	.04⅛	.04⅜	.04¼	.04¼	.04	.03⅞	.03⅝	.03⅝	.03⅝
64-66 375 endpoint	.04⅜	.04²⁷	.04⅜	.04⅜	.04⅜	.04⅝	.04⅛	.04⅛	.04¼	.04⅛	.04⅛	.04⅛	.04
North Louisiana:*													
58-60 437 endpoint (U. S. Motor)	.04⅜	.04⅜	.04⅜	.04⅜	.04½	.04½	.04⅜	.04⅜	.04¼	.04	.03⅜	.03⅜	.03⅜
Pennsylvania:													
52-54 Naphtha	.06	.06	.06	.06	.06	.06	.06	.06	.05⅝	.05⅝	.05⅝	.05½	.05½
58-60 Gasoline	.06¼	.06¼	.06¼	.06	.06	.06	.06	.06	.05⅝	.05⅝	.05⅝	.05⅝	.05½
60 Gasoline	.06½	.06½	.06¼²	.06¼	.06¼	.06	.06	.06	.05⅝	.06	.06	.06	.06
64 Gasoline	.07	.07	.07	.07	.06⅜	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06⅜
California:													
54-58 437 endpoint (U. S. Motor), domestic†	.06½	.06½	.06½	.07	.07	.07	.08	.08½	.05½	.05	.05	.05	.04
Gulf Coast (Export):													
58-60 U. S. Motor	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛
60-62 400 endpoint	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.04¾	.04¾	.04¾	.04¾	.04¾
61-63 390 endpoint	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05⅝
64-66 375 endpoint	.06	.06	.06⅛	.06⅛	.06⅛	.06⅛	.06⅛	.06⅛	.05⅞	.05⅞	.05⅞	.05½	.05½

*Louisiana, Arkansas and Mississippi delivery. †For local consumption.

NATURAL GASOLINE—													
Oklahoma (Group 3):													
Grade A, 72-79.9, 375 e.p., rec. 90%	.03⅛	.03⅛	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03½	.03⅛	.03⅛	.03	.02⅞	.02⅝
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03	.03¼	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03¼	.03	.03	.02⅝	.02⅝	.02⅝
Grade B, 76-83.9, 375 e.p., rec. 85%	.02⅝	.02⅝	.03	.03¼	.03¼	.03¼	.03	.02⅝	.02⅝	.02⅛	.02⅛	.02⅛	.02⅛
Grade BB, 84-92, 375 e.p., rec. 85%	.02⅛	.02⅛	.02⅜	.03⅛	.02⅛	.03	.03	.02⅜	.02⅛	.02⅛	.02⅜	.02¼	.02⅛
Grade C, 80-92, 375 e.p., rec. 78%	.02½	.03⅛	.02⅜	.03	.03¼	.03	.03	.02⅜	.02⅛	.02½	.02⅛	.02¼	.02
California:													
75-78 375-390 endpoint	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04½	.04½	.04½	.04½
BURNING OIL—													
Oklahoma (Group 3):													
41-43 water white Kerosene	.03	.03	.02	.02	.03	.03	.03	.03	.02⅞	.02⅝	.02⅝	.02⅝	.02⅝
42-44 water white Kerosene	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03	.02⅞	.02⅞	.02⅞
North Texas:													
41-43 water white Kerosene	.03	.03	.03	.03	.03	.03	.03	.02⅞	.02⅝	.02½	.02⅜	.02¼	.02½
Pennsylvania:													
43 Kerosene, prime white	.05	.05	.04⅞	.04⅞	.04⅞	.04⅞	.04⅞	.04⅜	.04⅝	.04⅝	.04⅝	.04½	.04½
45 Kerosene, water white	.05⅛	.05⅛	.05⅛	.05	.05	.05	.04⅞	.04⅝	.04⅜	.04⅜	.04⅜	.04⅝	.04⅜
California:													
38-40 w. w. Kerosene (high burning test)	.05	.05	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04½
Gulf Coast (Export):													
41-43 prime white	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04⅛
44 water white	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛
FUEL OIL—													
Oklahoma (Group 3):													
Below 18 Fuel Oil, per bbl.	.40	.40	.40	.42½	.42½	.42½	.40	.40	.40	.40	.40	.40	.37½
24-26 Fuel Oil, per bbl.	.65	.65	.65	.65	.65	.60	.60	.57½	.57½	.57½	.57½	.57½	.55
32-36 Gas Oil (industrial)	.02	.02	.02	.02	.02	.02	.02	.02	.01⅝	.01⅝	.01⅝	.01⅝	.01½
38-40 Straw Distillate	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02½	.02½	.02⅝	.02⅝	.02⅝
North Texas:													
Below 20 Fuel Oil, per bbl.	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
32-36 Gas Oil (industrial)	.02	.02	.02	.02	.02	.01⅞	.01⅞	.01⅞	.01⅝	.01⅝	.01⅝	.01⅝	.01½
38-40 Straw Distillate	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02½	.02½	.02⅜	.02⅜	.02¼	.02¼	.02¼
North Louisiana:*													
18-20 Fuel Oil, per bbl.	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.60	.60	.60
Gulf Coast (South Texas):													
Gas Oil	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03	.03	.03
Bunker C Fuel (cargo lots), per bbl.	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65
Pennsylvania:													
30-34 Fuel Oil	.03½	.03½	.03½	.03½	.03¼	.03¼	.03¼	.03¼	.03¼	.03⅛	.03⅛	.03	.03
36-40 Fuel Oil	.03½	.03½	.03½	.03½	.03½	.03½	.03¼	.03¼	.03¼	.03¼	.03¼	.03⅛	.03
California:													
15-19 Fuel Oil, Bunker (at tidewater)	.55	.55	.55	.55	.55	.55	.55	.55	.60	.60	.55	.55	.55
27 plus Diesel, per bbl.	.80	.80	.80	.80	.80	.80	.80	.80	.80	.75	.75	.75	.75

*Louisiana, Arkansas and Mississippi delivery.

LUBRICATING OIL AND WAX—													
Oklahoma (Group 3):													
100 vis., 3 color, 20-25 cold test	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.05	.05	.05	.04⅝
180 vis., 3 color, 23-28 cold test	.08½	.08½	.08⅝	.08⅝	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½
180 vis., 5 color, 23-28 cold test	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼
200 vis., 3 color, 23-28 cold test	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09⅝	.09½	.09½
240 vis., 5 color, 25-30 cold test	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼	.11¼
Cylinder Stocks: 600, steam ref., lt. green	.07	.07	.07	.07	.07	.07	.07	.06	.06	.06	.06	.06	.06
150-160 vis., D color, Bright Stock (10-25 C.T.)	.18	.18	.18	.18	.18	.18	.18	.17	.17	.17	.17	.16	.16
Waxes: 124-126 White Crude Scale Wax.	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.01¾	.01¾	.01¾
Pennsylvania: 200, 3 color	.17½	.17½	.17½	.17¼	.17¼	.17½	.17	.18½	.18½	.20	.21	.22	.22
600, steam refined	.09	.09	.08⅝	.08⅝	.08⅝	.08⅝	.08½	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼
600, Pennsylvania flash	.14½	.14½	.13½	.13	.13	.13	.13	.13	.13	.13	.13	.11	.12
Pennsylvania Bright Stocks (Below 35 C.T.)	.19	.19	.18	.18	.18	.18	.18	.18	.18	.18	.18½	.18½	.18½
Gulf Coast (South Texas):													
200 vis., 3 color, pale oil	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼
200 vis., 5-6 color, red oil	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½
California: 200 vis., 2½-3 color	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
Red Neutral: 200 vis., 4½-5 color	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½
N. Y. (BAYONNE) REFINERY PRICES—													
Gasoline, U. S. Motor, 58-60, 437 e.p.	.07	.07	.07	.07	.07	.07	.07	.07	.07	.06⅜	.07	.07	.06½
Kerosene, water white, 41-43	.06	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06	.06	.05⅝
Fuel Oil, Bunker "C." 14-16*	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Fuel Oil, Diesel, 28-30, per bbl.†	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85
Gas oil, 28 plus gravity	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼
28 pale Paraffin Oil, tank car	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼
250 red Paraffin Oil, tank car	.11½	.11½	.11½	.11½	.11½	.11½	.11½	.11½	.11½	.11½	.11½	.11½	.11½
Refined Wax: 120-122 a.m.p., per lb.	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
Petrolatum (bbls.), carload lots, lb.: Amber	.03¼	.03¼	.03¼	.03¼	.03½	.03½	.03¼	.03	.03	.03	.03	.03	.03

*Lighterage, 5 cents a barrel extra. †Lighterage 6.5 cents per barrel.

N. Y. (BAYONNE) EXPORT PRICES—													
600, steam refined Cylinder Stocks, in bbls.	.16½	.16½	.16½	.16½	.16½	.16½	.16½	.16½	.16½	.16⅜	.16½	.16½	.16½
600, Pennsylvania flash	.23½	.23½	.22½	.22¼	.22½	.21½	.22½	.22½	.21½	.21	.21	.21	.21
Light 140-150 Bright Stocks	.26	.26	.26	.25	.25	.25	.25	.25½	.25½	.25½	.25½	.25½	.26
LOS ANGELES EXPORT PRICES—													
Kerosene, water white	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝
U. S. Motor Gasoline, 53-55, 437 e.p.*	.07	.07	.06	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝

*For coastwise and off-shore shipments.

an average price of 17.84 cents the first half of this year. The average price for 150-160 D bright stock in Oklahoma was 15.68 cents. The Mid-Continent and Pennsylvania areas were closer together in bright stock prices than during any previous period.

A 600 steam refined cylinder stock in Pennsylvania brought the manufacturers an average price of 8.25 cents per gallon the first half year. A light stock in Oklahoma averaged 5.5 cents. Due to the low prices prevailing for fuel oil, these steam refined stocks depending partially on specifications sold at wide price ranges in the Mid-Continent, sales as low as 2 cents per gallon being reported.

Fewer price changes were made in the pale and red neutrals refined from asphaltic and naphthene base oils in California and the Gulf Coast. The price trend in these oils, however, was downward throughout the half year. These low prices in neutral oils and stocks naturally were reflected in lower quotations for the compounded motor oils and the various grades of industrial oils.

Wax

The price decline in petroleum wax has extended over three years and there was little indication of improvement as the half year ended. Both the domestic and export demand has decreased steadily. Refiners have reduced their output and the stock situation recently has shown some improvement.

At New York (Bayonne, N. J.,), a 120-122 refined wax brought an average price of 2.97 cents per gallon the first half year. The year before the average price was 3.26 cents and in 1928, 4.24 cents. These price changes are representative of conditions wherever wax is manufactured, allowance being made for differences in specifications and the amount of transportation charge which has to be absorbed by the refiners.

QUOTATIONS ON REPRESENTATIVE REFINED PRODUCTS FOR EXPORT AND DOMESTIC MOVEMENT. INCLUDES AVERAGES 1928 AND 1929. PRICES GIVEN IN CENTS PER GALLON F.O.B. REFINERIES, UNLESS OTHERWISE NOTED.

April				May				June				1st half 1931			1930			1929			1928		
7	14	21	28	5	12	19	26	2	9	16	23	30	Av. price	High	Low	Av. pr. for yr.	High	Low	Av. price 1st 6 mos.	Av. price 2nd 6 mos.	Av. pr. for yr.	High	Low	Av. price 1st 6 mos.	Av. price 2nd 6 mos.
.03¼	.03¼	.02⅝	.03⅛	.03¼	.02⅝	.02⅞	.02⅞	.02⅝	.02⅝	.02⅝	.02¼	.02⅝	.0336	.04¼	.02¼	.0591	.07	.04¼	.0648	.0538	.0721	.08⅝	.06⅛	.0725	.0718
.03¼	.03¼	.03⅛	.03	.02⅞	.02⅝	.02⅝	.02⅝	.02½	.02⅛	.02⅛	.02	.02¼	.0325	.04¼	.02	.0571	.07	.04	.0626	.0521	.0711	.08⅜	.06½	.0726	.0698
.03⅜	.03⅜	.03¼	.03¼	.03	.02⅝	.02⅞	.02⅞	.02⅝	.02⅛	.02⅛	.02¼	.02⅝	.0335	.04¼	.02⅛	.0634	.075	.04	.0688	.0584	.0775	.09¼	.0685	.0779	.0771
.03⅜	.03⅜	.03¼	.03¼	.03	.02⅞	.03	.02⅞	.02⅝	.02½	.02⅝	.02¼	.02⅝	.0346	.04¼	.02¼	.0616	.075	.04⅛	.0679	.0557	.....	.....	.....	.....	.....
.03⅝	.03⅜	.03¼	.03¼	.03¼	.03	.03	.02⅞	.02⅝	.02½	.02⅝	.02⅝	.02⅝	.0357	.04⅜	.02⅜	.0674	.0775	.04¼	.0721	.0631	.0808	.0969	.0732	.0818	.0799
.03½	.03⅜	.03½	.03⅜	.03¼	.03⅛	.03⅛	.03	.02⅞	.02⅝	.02½	.02⅝	.02⅝	.0392	.04⅜	.02⅜	.0704	.0812	.04⅝	.0767	.0646	.0855	.0983	.07⅛	.0872	.0850
.03⅝	.04	.04	.03⅝	.03⅝	.03⅜	.03⅜	.03¼	.03¼	.03	.02⅞	.02⅝	.03	.0422	.05¼	.02⅝	.0707	.08⅛	.05	.0771	.0647	.0837	.09⅜	.07⅝	.0859	.0816
.04	.04¼	.04⅛	.04	.03⅝	.03⅝	.03⅝	.03½	.03⅝	.03⅛	.02⅞	.02⅜	.03⅛													
.03¼	.03⅝	.02¼	.03⅛	.03	.02⅝	.02⅝	.02⅝	.02½	.02⅝	.02⅛	.02⅛	.02¼	.0314	.04¼	.02⅛	.0572	.07	.04	.0627	.0521	.0756	.08⅞	.06¼	.0730	.0701
.03⅝	.03⅛	.03⅛	.03¼	.03¼	.03⅛	.03	.02⅞	.02⅝	.02⅝	.02⅜	.02⅛	.02⅛	.0351	.04⅜	.02¼	.0601	.07½	.04¼	.0656	.0550	.....	.....	.....	.....	.....
.03⅝	.03⅜	.03⅜	.03¼	.03⅜	.03¼	.03¼	.03¼	.03	.02⅞	.02½	.02½	.02⅝	.0368	.04¼	.02¼	.0631	.07½	.04⅛	.0694	.0573	.0774	.09¼	.07¼	.0790	.0759
.03⅜	.03⅜	.03⅜	.03½	.03⅜	.03¼	.03¼	.03¼	.03	.02⅞	.02½	.02⅛	.02⅝	.0389	.04⅜	.02⅜	.0658	.07⅝	.04⅜	.0726	.0594	.0798	.09½	.07¼	.0816	.0781
.03⅝	.03⅞	.04	.03⅝	.03¼	.03⅜	.03⅛	.03¼	.03¼	.02⅞	.02⅝	.02⅝	.02⅝													
.03⅝	.03⅜	.03⅜	.03⅝	.03⅜	.03⅜	.03½	.03¼	.03	.02⅞	.02⅜	.02⅝	.02⅝	.0379	.04⅜	.02⅝	.0675	.07⅜	.04⅜	.0713	.0639	.0793	.09⅝	.07	.0797	.0790
.05¼	.05	.05	.05	.05	.05	.05	.04⅝	.04⅝	.04⅝	.04⅛	.04⅛	.04¼	.0535	.06	.04⅛	.0703	.07⅝	.06	.0733	.0675	.0829	.09	.07¼	.0847	.0811
.05½	.05¼	.05¼	.05¼	.05¼	.05	.05	.05	.04⅞	.04⅝	.04⅜	.04½	.04⅝	.0546	.06¼	.04⅝	.0737	.08¼	.06¼	.078	.0697	.0905	.10	.07⅝	.0941	.0871
.05⅝	.05⅛	.05¼	.05¼	.05¼	.05¼	.05	.05⅛	.05⅛	.05⅛	.05	.04⅝	.04½	.0563	.06⅛	.04⅛	.0756	.08⅛	.06½	.0801	.0715	.0935	.10½	.08	.0980	.0892
.06⅛	.06	.06	.06	.06	.05½	.05½	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.0608	.07	.05⅛	.0808	.09	.07	.0841	.0777	.1016	.12	.08⅛	.1062	.0971
.03⅛	.03⅛	.03	.03	.03	.03	.03	.03	.03	.03	.04⅛	.05	.0481	.08⅛	.03	.0806	.09½	.06⅛	.0806	.0806	.0889	.10	.06	.0877	.09	
.04⅛	.04⅛	.04⅛	.04⅛	.04⅛	.04¼	.04¼	.04¼	.04½	.04	.03½	.03⅛	.03⅛	.0453	.05⅛	.03⅛	.0751	.08⅛	.05⅛	.0816	.0691	.0849	.08⅛	.08¼	.0848	.085
.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04½	.04½	.04½	.04¼	.03⅝	.03⅝	.03⅝	.0479	.05⅛	.03⅝	.0838	.09⅛	.05⅛	.0916	.0766	.0949	.09⅜	.09⅛	.0948	.095
.05⅜	.05¼	.05¼	.05¼	.05¼	.04⅝	.04⅝	.04⅝	.04⅝	.04⅜	.03⅝	.03⅝	.03⅝	.0521	.05⅞	.03⅜	.0865	.09⅜	.05⅜	.0941	.0795	.0974	.09⅝	.09⅜	.0973	.0975
.05⅛	.05⅛	.05⅛	.05⅛	.05⅛	.05	.05	.05	.05	.04⅝	.03⅝	.03⅝	.03⅝	.0542	.06⅛	.03⅜	.0888	.10	.06	.0956	.0826	.0999	.10	.09⅝	.0998	.10
.02⅛	.02⅛	.02	.01⅞	.01⅞	.01⅞	.01⅞	.01⅞	.02	.02	.01⅞	.01⅞	.01⅞	.0265	.03⅜	.01⅞	.0536	.06⅛	.03⅛	.0587	.0489	.0706	.08	.06⅛	.0755	.0658
.02⅛	.02⅛	.01⅝	.01⅝	.01½	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.0241	.03½	.01½	.0524	.06⅛	.03	.0571	.0481	.0683	.08	.05½	.0716	.0614
.02	.02	.01⅝	.01½	.01½	.01½	.01½	.01½	.01½	.01½	.01½	.01½	.01½	.0226	.03¼	.01½	.0494	.06⅛	.02⅝	.0522	.0471	.0637	.07⅜	.05¼	.0656	.0619
.01⅞	.01⅞	.01⅝	.01½	.01½	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.0211	.03¼	.01⅜	.0488	.06⅛	.02⅝	.0509	.0468	.0630	.07⅜	.05¼	.0645	.0616
.01⅝	.01⅝	.01½	.01⅝	.01¼	.01⅜	.01⅜	.01⅜	.01⅜	.01⅜	.01⅜	.01⅜	.01⅜	.0208	.03¼	.01¼	.0483	.06½	.02⅝	.0502	.0466	.0618	.07½	.04⅞	.0623	.0613
.03½	.03¼	.03	.02½	.02½	.02½	.01⅝	.01⅝	.02	.02	.02¼	.03	.03⅛	.0370	.05	.01⅝	.0712	.08½	.05⅝	.0753	.0675	.0803	.09	.06	.0777	.0828
.02⅝	.02⅝	.02½	.02½	.02½	.02⅝	.02⅝	.02⅝	.02¼	.02¼	.02¼	.02	.01⅞	.0262	.03	.01⅞	.0358	.04½	.03	.0406	.0314	.0517	.06⅝	.04½	.0549	.0487
.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02½	.02½	.02⅝	.02⅝	.02⅝	.02⅛	.02	.0281	.03¼	.02	.0390	.04⅝	.03¼	.044	.0341	.0573	.07⅛	.04⅝	.0617	.0533
.02½	.02½	.02½	.02½	.02⅝	.02⅝	.02⅝	.02⅝	.02¼	.02⅛	.02	.02	.01⅝	.0255	.03	.01⅝	.0348	.04¼	.03	.0394	.0305	.0517	.07⅛	.04	.0568	.0468
.04⅛	.04⅛	.04⅛	.04⅜	.04⅜	.04	.04	.04	.03⅞	.03⅝	.03⅝	.03⅝	.03⅝	.0444	.05	.03⅝	.0501	.05⅝	.04⅛	.0546	.0460	.0651	.07¼	.05⅜	.0690	.0614
.04⅛	.04¼	.04⅛	.04⅜	.04⅜	.04¼	.04¼	.04¼	.04	.03⅝	.03⅜	.03⅜	.03⅜	.0453	.05¼	.03⅜	.0526	.06	.04¼	.0568	.0487	.0667	.07¼	.06	.0703	.0632
.04¼	.04¼	.04	.04	.04	.04	.04	.04	.03⅞	.03¼	.04	.04	.0436	.05	.03¼	.0455	.05	.04	.0446	.0463	.0569	.06⅛	.05	.0620	.0520
.04¼	.04¼	.04¼	.04¼	.04	.04	.04	.04	.03¾	.03½	.03½	.03½	.0409	.04¼	.03½	.0588	.07	.04	.0632	.0547	.0714	.07⅜	.06⅝	.0728	.07
.04¼	.04¼	.04¼	.04¼	.04	.04	.04	.04	.03⅜	.03½	.03½	.03½	.0499	.05¼	.03½	.0668	.08	.05	.073	.0610	.0814	.08⅜	.07⅜	.0828	.08	
.05¼	.05¼	.05¼	.05¼	.05¼	.05	.05	.05	.04⅝	.03½	.03½	.03½														
.35	.35	.35	.35	.35	.30	.30	.27½	.25	.25	.25	.25	.25	.3510	.42½	.25	.5225	.70	.40	.613	.438	.526	.70	.45	.499	.5530
.50	.50	.47½	.47½	.47½	.45	.45	.42½	.40	.40	.40	.40	.40	.5240	.65	.40	.7043	.90	.55	.792	.623	.706	.90	.60	.646	.7630
.01½	.01⅜	.01¼	.01⅛	.01⅛	.01	.00⅞	.00⅞	.00⅜	.00⅝	.00⅝	.00⅝	.00⅝	.0143	.02	.00⅜	.0227	.02⅜	.02	.0245	.0211	.0265	.03	.02⅛	.0262	.0268
.02¼	.02¼	.02¼	.02⅛	.02¼	.01⅞	.01⅝	.01½	.01½	.01½	.01¼	.01⅛	.01⅛	.0220	.02⅝	.01⅝	.0294	.03⅝	.02⅜	.0313	.0275	.0365	.04⅜	.03⅛	.0363	.0367
.30	.30	.30	.25	.25	.25	.25	.25	.25	.22½	.20	.20	.20	.2740	.30	.20	.4649	.65	.30	.547	.39	.....	.....	.....	.....	.....
.01⅜	.01¼	.01⅛	.01	.01	.01	.00⅝	.00⅝	.00⅜	.00⅜	.00⅜	.00⅝	.00⅝	.0137	.02	.00⅝	.0215	.02⅞	.02	.0231	.0201	.0267	.03⅛	.02⅛	.0266	.0269
.02⅛	.02⅛	.02	.01⅞	.01⅞	.01⅝	.01⅝	.01⅝	.01¼	.01¼	.01¼	.01¼	.01¼	.0206	.02⅝	.01¼	.0287	.03⅝	.02⅜	.02	.0275	.0359	.04¼	.03⅛	.0359	.0359
.60	.60	.55	.55	.55	.55	.55	.55	.55	.55	.55	.50	.50	.6135	.70	.50	.0782	.85	.70	.80	.76	.7428	.80	.70	.72	.76
.63	.63	.63	.63	.63	.63	.62⅝	.62½	.62½	.62½	.62½	.62⅛	.62⅛	.0292	.63⅛	.62½	.0375	.04	.03⅛	.0381	.0370	.0387	.04⅛	.03⅛	.0378	.0397
.65	.65	.65	.65	.65	.60	.60	.60	.60	.60	.60	.60	.60	.6346	.65	.60	.7130	.80	.62½	.714	.712	.7397	.80	.65	.756	.72
.03	.03	.02⅝	.02⅝	.02⅝	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.02½	.0295	.03⅛	.02½	.0386	.04⅜	.03	.0426	.0349	.0441	.04⅝	.04	.0454	.0428
.03	.03	.02⅞	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.0304	.03⅛	.02⅝	.0401	.04	.03⅛	.0440	.0365	.0455	.05⅛	.04⅛	.0459	.0449
.55	.55	.60	.60	.60	.60	.60	.60	.60	.55	.55	.55	.60	.5673	.60	.55	.6346	.70	.55	.65	.62	.6724	.85	.65	.69	.66
.75	.75	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.7462	.80	.70	.8365	.90	.75	.85	.82	.90	1.15	.90	.90	.90
.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.04⅝	.05	.04½	.04½	.04¼	.04¼	.0473	.05	.04¼	.0545	.05⅝	.04⅝	.0556	.0534	.0561	.06	.05¼	.0547	.0575
.03½	.03½	.03½	.03½	.03½	.03	.03	.03	.03	.07⅝	.07⅝	.07⅝	.07¼	.0831	.08½	.07⅝	.0927	.10	.08½	.0986	.0872	.0915	.09⅝	.08⅜	.0894	.0934
.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.0775	.07⅝	.07⅜	.0838	.09½	.07¼	.09	.0780	.0850	.09	.08¼	.0840	.0859
.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.08⅝	.08⅝	.08⅝	.08⅛	.08⅛	.0944	.09⅝	.08½	.1059	.11⅜	.09⅝	.111	.1012	.0966	.10⅜	.09¼	.0938	.0994
.11⅜	.11⅜	.11⅜	.11⅜	.11⅜	.09⅝	.09⅝	.09⅝	.09½	.09½	.09½	.09½	.09½	.1071	.11¼	.09½	.1171	.13⅜	.11¼	.128	.1162	.1155	.12⅝	.10⅜	.1116	.1194
.05	.05	.05	.05	.05	.04½	.04½	.04½	.04	.04	.04	.04	.04	.0550	.07	.04	.0831	.10	.07	.09	.0767	.1098	.14⅛	.08	.1042	.115
.16	.15	.15	.15	.15	.14	.13⅝	.13⅝	.12⅝	.12½	.12½	.12½	.12½	.1568	.18	.12½	.2977	.37	.18	.366	.23	.3368	.37	.28	.31	.36
.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.01⅝	.0185	.02	.01⅝	.0216	.02⅝	.01⅝	.0234	.0199	.0321	.05	.02⅛	.0364	.0279
.22½	.22	.22	.21½	.21½	.21½	.21⅜	.21	.21	.21	.21	.21	.21	.2007	.22	.17¼	.2111	.25½	.16⅛	.246	.1787	.....	.....	.....	.....	.....
.08¼	.08¼	.08¼	.08¼	.08¼	.08	.08	.08	.07⅝	.07½	.07½	.07½	.07½	.0825	.09	.07½	.1591	.24	.09	.218	.1045	.....	.....	.....	.....	.....
.12	.11	.12	.12	.12	.11⅛	.12	.11⅛	.11⅛	.11⅛	.11⅛	.11⅛	.11⅛	.1235	.14⅛	.11	.2337	.32	.14⅛	.298	.1741	.3646	.41½	.30	.41	.321
.18½	.18½	.18	.18	.18	.17½	.17½	.17½	.17	.17	.16¼	.16¼	.16¼	.1784	.19	.16¼	.3073	.43	.19	.39	.23	.4745	.57	.39	.452	.496
.08¼	.08¼	.08¼	.08¼	.08¼	.07⅝	.07⅝	.07⅝	.07⅝	.07⅝	.07½	.07½	.07½	.0807	.08¼	.07½	.0912	.09½	.08¼	.0922	.0901	.0890	.09⅛	.08⅛	.089	.089
.07½	.07½	.07½	.07½	.07½	.07	.07	.07	.07	.06⅝	.06⅝	.06⅝	.06⅝	.0721	.07½	.06⅝	.0829	.08⅝	.07	.0831	.0828	.0779	.08⅜	.07	.0778	.078
.10	.10	.10	.10	.10	.10	.10	.10	.10	.09	.09	.09	.09	.0988	.10	.09	.1074	.11⅜	.10	.11	.1050	.1150	.11½	.11½	.115	.115
.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.0950	.09½	.09½	.1063	.11	.09½	.11	.1028	.11	.11¾	.11	.11	.11
.06½	.06⅝	.06⅝	.06⅝	.06	.06	.05⅝	.05⅝	.05⅝	.05⅝	.05⅛	.05½	.05⅜	.0644	.07	.05⅜	.0807	.09	.06¼	.0864	.0755	.0940	.10½	.08⅜	.096	.0920
.05⅝	.05⅝	.05⅝	.05⅝	.05⅝	.05¼	.05¼	.05⅛	.05⅛	.05⅛	.04⅝	.04⅝	.04⅝	.0576	.06¼	.04⅝	.07	.07⅝	.06	.0742	.0662	.0806	.09	.07⅝	.0832	.0781
1.05	1.05	1.05	.95	.95	.95	.95	.85	.85	.85	.85	.85	.85	.9923	1.05	.85	1.0919	1.15	1.05	1.094	1.09	1.05	1.05	1.05	1.05	1.05
1.75	1.75	1.75	1.75	1.75	1.65	1.65	1.65	1.55	1.55	1.55	1.55	1.55	1.7538	1.85	1.55	1.9913	2.00	1.85	2.00	1.98	2.00	2.00	2.00	2.00	2.00
.04¼	.04¼	.04¼	.04¼	.04¼	.04	.04	.04	.04	.04	.04	.04	.04	.0417	.04¼	.04	.0472	.04⅝	.04¼	.0475	.0469	.0516	.05¼	.04⅝	.0512	.0519
.07⅜	.07½	.07⅜	.07⅝	.07⅜	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.0725	.07⅜	.07¼	.0725	.07⅛	.07¼	.0725	.0725	.0730	.07½	.07¼	.0736	.07¼
.11⅜	.11⅜	.11⅜	.11⅜	.11⅜	.11⅛	.11⅛	.11⅛	.11⅛	.11⅛	.11⅛	.11⅛	.11⅛	.1150	.11⅜	.11⅛	.1150	.11⅜	.11⅜	.115	.1150	.1108	.11⅛	.11	.11	.1110
.03	.03	.03	.03	.03	.03	.03	.02	.02⅞	.02⅞	.02⅞	.02⅞	.02⅞	.0297	.03	.02⅞	.0326	.03⅜	.02⅝	.0358	.0296	.0424	.05⅝	.03⅜	.0468	.0381
.03	.03	.03	.03	.03	.03	.03	.02	.03	.03	.03	.03	.02⅝	.0304	.03¼	.02⅝	.0291	.03⅜	.03¼	.0336	.0325	.0353	.03⅝	.03½	.035	.0355
.16¼	.16¼	.16¼	.16	.16	.16	.16	.16	.16	.16	.15⅝	.15⅝	.15⅛	.1624	.16⅛	.15½	.236	.31½	.16⅛	.303	.1746	.3347	.43	.30	.3502	.32
.21	.31	.20	.20	.20	.20	.20	.20	.19⅛	.19⅛	.19⅛	.19⅛	.19⅛	.2098	.23⅛	.19⅛	.3267	.40	.23½	.39	.2681	.....	.....	.....	.....	.....
.26	.26	.26⅛	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.2535	.265	.2425	.3935	.52	.26	.4812	.30	.5612	.63	.46	.534	.59
.04½	.04½	.04¼	.04¼	.04	.04	.04	.04	.04	.04	.04	.04½	.04½	.0448	.04⅝	.04	.0417	.04⅝	.03⅝	.0407	.0427	.0508	.05½	.04½	.055	.047
.04½	.04½	.04	.03⅝	.03½	.03⅛	.03¼	.03¼	.03¼	.03¼	.03¼	.05	.05	.0451	.07	.03¼	.0633	.06⅝	.04⅝	.0634	.0631	.0693	.08	.06¼	.0718	.0668

OXY-ACETYLENE

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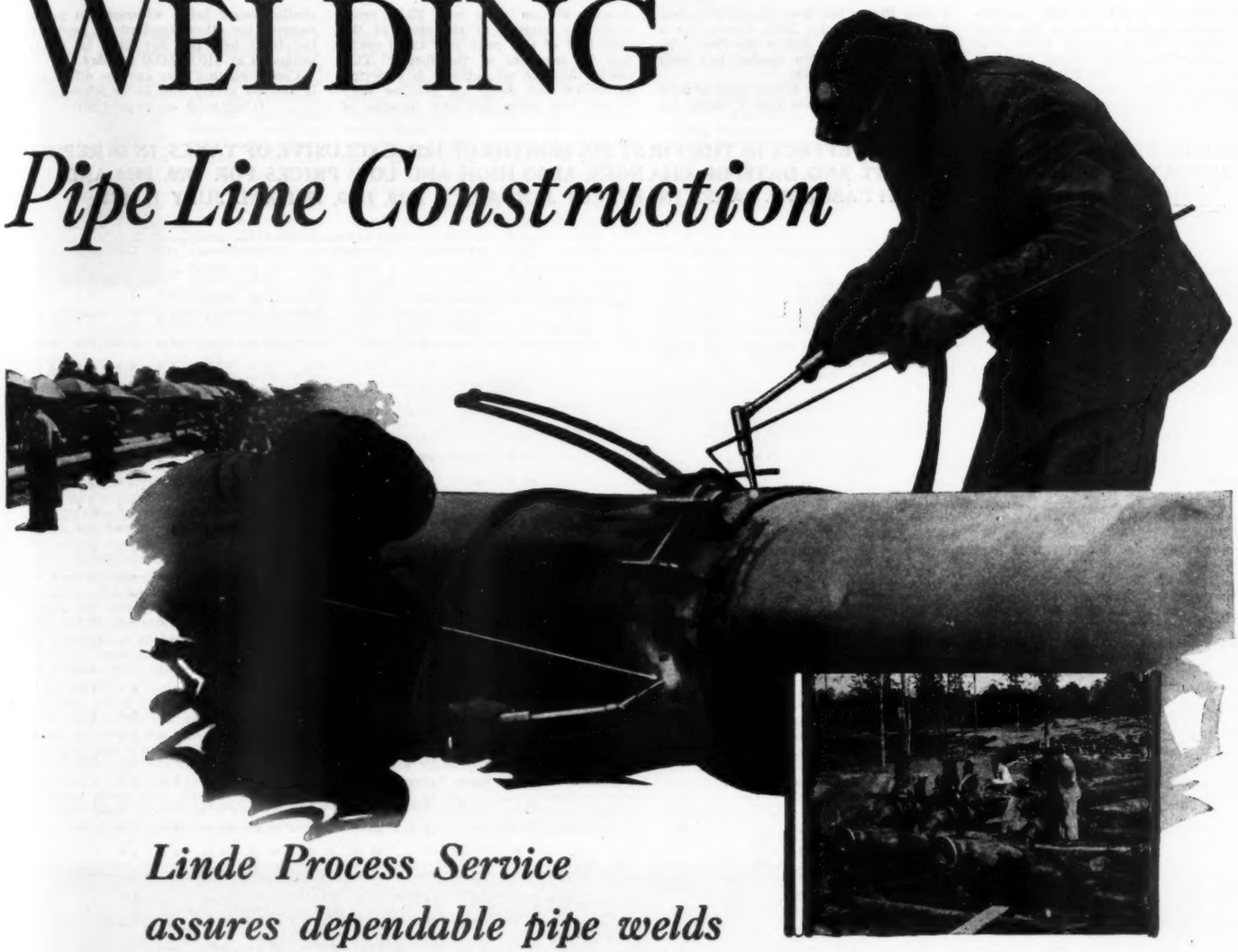
Oxy-acetylene welding a 20-in. natural gas line.

River crossing of 8 in. extra heavy pipe oxy-acetylene welded.

MORE miles of trunk pipe lines were oxy-acetylene welded during 1930 than in any previous year. More miles were gas welded than were joined by all other means combined.

In every climate, under every topographical condition, oxy-acetylene welding has proved to be the most reliable method of joining pipe lines. Oxy-acetylene welded lines are laid with confidence across rivers, over mountains, prairies, deserts, hill country and marsh land. Oxwelded lines are permanently tight and universally satisfactory from the standpoints of installation and maintenance costs and operating efficiency Transportation of oil, gas and gasoline through these lines continues year after year without interruption.

WELDING
Pipe Line Construction



Linde Process Service assures dependable pipe welds

Linde Process Service, applied in laying thousands of miles of pipe every year, has pioneered many advances in welding for maximum speed, economy and dependability. Step by step from mobilizing, training and testing of welders this service follows through to the final testing of the completed line.

It effectively supplements the work of your own engineers. It translates proved methods and well established laboratory findings into terms of actual field operation.

If you are a user of Linde Oxygen you are privileged to call upon Linde Process Service for assistance or advice. Write or telephone the nearest Linde District Office.

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LINDE OXYGEN · PREST-O-LITE ACETYLENE · OXWELD APPARATUS AND SUPPLIES · UNION CARBIDE

Six Months Revenue 200 Million Less

Gasoline Service Station Price Now 4 Cents Below Last Year's Average. State Taxes Continue to Mount Unchecked

By W. T. Ziegenhain

The first six months of 1931 contributed further to the decline in the average gasoline filling station price over the United States. The general trend in retail prices as reflected by an average of postings by the principal marketers in 50 cities scattered throughout the United States has been downward since the middle of July, 1926. Except for a moderate advance during the first nine months of 1928, the decline has been practically continuous.

The extent of this decline may be seen from the fact that on July 1, 1926, the average station price was 22.22 cents while the average at the close of the first half of this year was 12.46 cents, just 56 per cent of the former. This means that the oil industry is receiving $4,500,000 less daily for gasoline than it did five years ago and because of similar losses being witnessed in prices received for other standard oil products, the total loss per day may be safely estimated at $10,000,000 per day.

Compared to a year ago the difference is not so great, but nevertheless it is

(Continued on Page 127)

GASOLINE SERVICE STATION PRICES IN EFFECT IN THE FIRST SIX MONTHS OF 1931, EXCLUSIVE OF TAXES, IN 50 REPRESENTATIVE CITIES WITH AMOUNT AND DATE OF CHANGES, ALSO HIGH AND LOW PRICES FOR 1929, 1930 AND FIRST SIX MONTHS 1931, WITH GASOLINE TAXES IN EFFECT JANUARY 1, 1929, 1930, 1931 AND JULY 1, 1931

	Prices Jan. 1, 1931	Price changes during first six months 1931							Prices July 1, 1931	High and low prices — 6 mo. 1931		— 1930		— 1929		Taxes Jan.1, 1929	Jan.1, 1930	Jan.1, 1931	July1, 1931
Birmingham, Ala.	14.0	1/21 17.0	3/11 14.0	6/9 13.0	6/24 11.0	....	....	....	11.0	17.0	11.0	16.0	11.0	18.0	13.0	*4.0	*4.0	*4.0	*5.0
Phoenix, Ariz.	19.5	1/7 17.5	4/16 15.0	4/11 13.0	5/29 10.5	6/11 11.0	....	....	11.0	19.5	10.5	15.5	13.0	14.0	14.0	4.0	4.0	4.0	5.0
Little Rock, Ark.	13.0	2/7 12.0	2/16 14.5	2/26 16.5	3/13 12.0	4/11 11.5	5/20 11.0	5/26 10.0	10.0	16.5	11.5	13.0	8.0	15.0	12.0	5.0	5.0	5.0	6.0
San Francisco, Calif.	18.0	2/25 16.0	3/7 14.0	3/11 12.0	3/18 9.0	4/24 8.0	6/19 13.5	....	13.5	18.0	8.0	20.0	15.5	17.0	12.0	3.0	3.0	3.0	3.0
Denver, Colo.	11.0	2/3 10.0	2/25 12.0	3/18 13.0	3/28 14.0	6/3 13.0	....	....	13.0	14.0	10.0	14.0	9.0	15.0	11.0	4.0	4.0	4.0	4.0
Hartford, Conn.	17.5	3/11 14.5	....	....	....	....	....	....	14.5	17.5	14.5	16.0	13.5	18.0	16.0	2.0	2.0	2.0	2.0
Dover, Del.	16.0	3/11 15.0	3/18 14.0	6/15 13.0	....	....	....	....	13.0	16.0	13.0	16.0	14.0	17.0	15.0	3.0	3.0	3.0	3.0
Jacksonville, Fla.	13.0	1/14 15.0	3/11 13.0	4/27 11.0	6/1 12.0	....	....	....	12.0	15.0	11.0	16.0	11.0	18.0	16.0	5.0	6.0	6.0	6.0
Atlanta, Ga.	15.0	1/19 16.0	3/11 14.0	4/8 12.0	....	....	....	....	12.0	16.0	12.0	16.0	13.0	18.0	14.0	4.0	6.0	6.0	6.0
Boise, Idaho	20.5	5/15 16.0	....	....	....	....	....	....	16.0	20.5	16.0	19.5	17.5	20.5	17.5	4.0	4.0	5.0	5.0
Peoria, Ill.	14.4	3/5 12.4	4/11 11.4	....	....	....	....	....	11.4	14.4	11.4	16.2	12.0	16.2	14.2	...	3.0	3.0	3.0
Chicago, Ill.	14.0	3/5 12.0	4/11 11.0	....	....	....	....	....	11.0	14.0	11.0	15.0	13.0	16.0	14.0	...	3.0	3.0	3.0
Indianapolis, Ind.	13.9	1/3 14.3	3/5 12.3	4/11 11.3	....	....	....	....	11.3	14.3	11.3	16.2[1]	12.9	16.2	14.2	3.0	4.0	4.0	4.0
Des Moines, Iowa	12.5	1/3 14.5	3/5 12.5	4/17 11.5	....	....	....	....	11.5	14.5	11.5	16.5	12.5	16.5	14.5	3.0	3.0	3.0	3.0
Wichita, Kans.	10.8	4/11 9.8	....	....	....	....	....	....	9.8	10.8	9.8	14.8	11.8	14.8	12.8	2.0	3.0	3.0	3.0
Louisville, Ky.	13.0	3/12 12.0	....	....	....	....	....	....	12.0	13.0	12.0	16.0	11.0	16.0	15.0	5.0	5.0	5.0	5.0
New Orleans, La.	12.5	2/7 11.5	3/3 13.5	3/13 12.0	4/2 11.0	4/11 10.5	....	....	10.5	13.5	10.5	11.5	7.5	13.5	10.0	*3.0	*5.0	*6.0	*6.0
Augusta, Me.	14.8	....	....	....	....	....	....	....	14.8	14.8	14.8	16.0	13.8	17.0	16.0	4.0	4.0	4.0	4.0
Baltimore, Md.	12.2	4/9 11.9	6/15 11.4	....	....	....	....	....	11.4	12.2	11.4	15.0	11.2	16.0	14.0	4.0	4.0	4.0	4.0
Springfield, Mass.	14.9	3/11 14.5	....	....	....	....	....	....	14.5	14.9	14.5	16.0	12.9	18.0	16.0	...	2.0	2.0	3.0
Detroit, Mich.	9.5	1/3 14.8	2/4 13.8	3/5 12.8	4/11 11.8	....	....	....	11.8	14.8	9.5	16.8	10.3	16.8	14.8	3.0	3.0	3.0	3.0
Duluth, Minn.	14.5	1/3 15.5	3/5 13.5	4/11 12.5	....	....	....	....	12.5	15.5	12.5	17.5	14.5	17.5	15.5	2.0	3.0	3.0	3.0
Natchez, Miss.	15.0	....	....	....	....	....	....	....	15.0	15.0	15.0	15.5	13.0	16.5	14.0	5.0	5.0	5.0	5.0
Kansas City, Mo.	11.9	1/3 13.9	3/5 11.9	4/11 10.9	....	....	....	....	10.9	13.9	10.9	15.9	11.9	15.9	13.9	*3.0	*3.0	*3.0	*3.0
Helena, Mont.	18.0	....	....	....	....	....	....	....	18.0	18.0	18.0	20.5	15.0	20.5	19.5	3.0	5.0	5.0	5.0
Omaha, Nebr.	14.25	3/5 13.25	4/20 12.25	4/30 8.9	....	....	....	....	8.9	14.25	8.9	16.25	13.25	16.25	14.25	2.0	4.0	4.0	4.0
Reno, Nev.	22.0	1/7 20.0	1/19 18.0	1/20 16.0	3/13 15.0	4/4 16.0	6/19 17.5	6/22 16.5	16.5	22.0	13.3	24.0	20.0	20.0	18.0	4.0	4.0	4.0	4.0
Newark, N. J.	12.5	4/9 12.2	6/15 11.7	....	....	....	....	....	11.7	12.5	11.7	15.0	10.5	15.0	14.0	2.0	2.0	3.0	3.0
Albuquerque, N. Mex.	15.0	....	....	....	....	....	....	....	15.0	15.0	15.0	16.0	9.0	17.0	15.0	5.0	5.0	5.0	*6.0
New York, N. Y.	13.3	....	....	....	....	....	....	....	13.3	13.3	13.3	14.3	12.3	13.0	14.0	...	2.0	2.0	2.0
Charlotte, N. C.	14.3	3/12 12.0	4/1 13.0	4/18 14.0	6/15 13.5	6/20 11.0	....	....	11.0	14.3	11.0	15.3	12.0	16.0	12.0	4.0	5.0	5.0	6.0
Fargo, N. D.	16.9	2/4 14.0	3/5 14.3	4/11 13.0	4/22 12.9	....	....	....	13.9	16.9	12.0	18.9	15.2	18.9	16.9	2.0	3.0	3.0	3.0
Cleveland, Ohio	13.0	....	3/5 13.0	....	6/18 12.0	....	....	....	12.0	13.0	12.0	16.0	12.0	16.0	14.0	3.0	4.0	4.0	4.0
Tulsa, Okla.	13.0	2/28 11.0	....	....	4/28 8.0	5/4 6.0	5/15 7.0	6/23 8.0	8.0	13.0	6.0	12.0	9.0	14.0	10.0	3.0	4.0	4.0	5.0
Portland, Ore.	16.0	1/7 18.5	3/7 14.5	3/11 12.5	3/18 11.5	4/1 10.5	4/13 8.5	6/19 14.0	14.0	18.5	8.5	20.5	15.5	17.5	12.5	3.0	4.0	4.0	4.0
Philadelphia, Pa.	19.0	3/11 15.0	3/16 14.0	6/15 13.0	....	....	....	....	13.0	19.0	13.0	16.0	14.0	17.0	15.0	3.0	4.0	3.0	3.0
Providence, R. I.	12.7	3/11 13.7	6/26 12.5	....	....	....	....	....	12.5	13.7	12.5	16.0	10.7	18.0	16.0	2.0	2.0	2.0	2.0
Charleston, S. C.	12.3	4/9 12.0	6/15 11.5	....	....	....	....	....	11.5	13.3	11.5	15.0	11.3	16.0	14.0	5.0	6.0	6.0	6.0
Huron, S. D.	13.5	1/3 15.3	1/17 13.5	3/5 13.3	4/11 12.3	....	....	....	12.3	15.3	12.3	17.3	13.5	17.3	15.3	4.0	4.0	4.0	4.0
Memphis, Tenn.	14.0	2/7 13.0	3/13 12.0	4/2 11.0	5/9 9.0	....	....	....	9.0	14.0	9.0	13.0	9.0	15.0	11.0	3.0	5.0	5.0	6.0
Dallas, Tex.	13.0	2/9 14.0	4/5 12.0	....	....	....	....	....	12.0	14.0	12.0	13.0	10.0	14.0	11.0	2.0	4.0	4.0	4.0
Salt Lake City, Utah.	18.5	3/7 17.5	3/25 13.5	4/28 16.5	6/1 14.5	6/26 13.0	....	....	13.0	18.5	13.0	17.5	15.5	18.5	17.5	3.5	3.5	3.5	4.0
Burlington, Vt.	15.3	....	....	....	....	....	....	....	15.3	15.3	15.3	16.3	13.6	17.0	15.0	4.0	4.0	4.0	4.0
Norfolk, Va.	12.8	4/9 13.0	6/15 11.5	....	....	....	....	....	11.5	12.8	11.5	15.0	11.3	16.0	14.0	5.0	5.0	5.0	5.0
Washington, D. C.	12.7	4/9 12.4	6/15 11.9	....	....	....	....	....	11.9	12.7	11.9	15.0	11.7	16.0	14.0	2.0	2.0	2.0	2.0
Charleston, W. Va.	13.5	4/9 13.2	6/15 12.7	....	....	....	....	....	12.7	13.5	12.7	15.0	12.5	16.0	14.0	4.0	4.0	4.0	4.0
Milwaukee, Wis.	13.0	1/3 14.1	3/5 13.1	4/11 11.1	....	....	....	....	11.1	14.1	11.1	16.1	13.1	16.1	14.1	2.0	2.0	2.0	4.0
Casper, Wyo.	16.0	3/6 14.0	....	....	....	....	....	....	14.0	16.0	14.0	15.0	13.0	17.0	15.0	3.0	4.0	4.0	4.0
Seattle, Wash.	18.5	3/7 14.5	3/11 12.5	3/18 9.0	4/4 8.0	6/19 14.0	....	....	14.0	18.5	8.0	20.5	15.5	17.5	13.5	2.0	3.0	3.0	5.0
Minneapolis, Minn.	14.2	1/7 15.2	....	....	....	....	....	....	12.5	15.2	14.2	17.2	13.0	17.2	15.2	2.0	3.0	3.0	3.0
Average price	14.56	....	....	....	....	....	....	....	12.46	15.19	12.00	17.44	12.52	16.70	14.26	3.11	3.77	3.83	4.06

*Includes 1-cent city or parish tax.

Review of Progress in Engineering

Technical Men Have Made Over the Petroleum Industry, Adding to Efficiency in Every Branch of the Business

By L. G. E. Bignell
Petroleum Engineering Editor

In some quarters there seems to be a tendency to blame the engineer to a large extent for the critical situation that has developed in the petroleum industry, and in fact some have blamed him and the machine age in which we are now living for the world wide depression. This hardly seems justified, for while it is true that technical research and development has brought about greatly changed living conditions it does not seem fair to place the blame upon any one group of men.

Some say that without so much technical advice and attention to details the oil industry would have rocked along and present bad conditions would not have developed so rapidly. In the "good old days" when everything was handled by the producer from purchase of lease to selling of production the drilling of a well was a comparatively simple process and purchasing was done by the producer when and how he felt his needs demanded. Now the engineer is called upon to make specifications and decide details.

The manufacturers have been called upon to develop greatly improved equipment for every branch of the industry, but if the customer had not been ready and willing to make use of this machinery the manufacturers certainly would not have spent money and time in developing it.

Some claim that the introduction of the rotary into drilling has made it possible to speed up well drilling to that point where it is now possible to obtain much more oil than can be consumed immediately. The old system of cable tool drilling would have made it necessary to proceed much more slowly and therefore the new flush production periods would have been spread out over a much greater length.

This argument may have some merit but it might as well be claimed that the use of the automobile and airplane and the elimination of horse-drawn vehicles is a detriment to our national progress and well being. If the rotary had not proved itself efficient and a means of reducing costs of drilling it would not have won its place in the industry. It was adopted because executives saw opportunities to get to oil more quickly by using it and back of all the present chaos and confusion is the same basic trouble; too great a desire to develop properties quickly and secure oil regardless of whether the rate of consumption is keeping pace with the development.

Law of Demand and Supply

Nearly everyone in talking about the situation that now exists states that "the law of supply and demand has been disregarded." This is not a true statement for according to the text books on economics the terms are reversed and become "demand and supply" and that is the true order in which events should follow one another.

If the producing and drilling companies had not demanded heavier and more efficient equipment the manufacturers would not have attempted to make it, so the demand was created before the supply was developed, and so it should be with the actual process of developing and producing oil pools.

While there is apparently an over abundance of crude oil at this time, as a matter of fact this condition is more apparent than real, for with an industry requiring nearly 1,000,000,000 bbls. of oil yearly and every barrel being consumed, never to be reproduced, there must be a large potential reserve if the manufacturers of finished products are to get proper returns from their investments. The same is true of the producers who have invested in wells and properties in areas where deep drilling is necessary. They must be assured of a steady market over a long period of time to pay them back their original capital investment with a legitimate profit.

If the engineer and technician are to be blamed for bringing about this condition of overproduction in every branch of industry and the reduction of the use of manual labor and its attendant unemployment, it must be remembered to his credit that man has been struggling ever since he came out of the cave to get to that point where he could feel fairly safe with regard to his future supply of food and other things essential to his life and well being.

That such a condition of comparative assurance against famine and shortage has been reached in this twentieth century is to be regarded as a blessing rather than a curse and if the engineer and inventor has had a hand in bringing it about they should be given credit.

The modern equipment is not in itself detrimental to the well being of mankind, but the unnecessary exploitation of it by those who feel that they must make fortunes immediately, so that they may live for the balance of their lives in ease and luxury, is wrong and creates this condition of overproduction and depression. Greed is the only word that covers the whole situation and if man could forego the desire to protect himself beyond a reasonable degree against his future needs and stop piling up vast fortunes, the invention of new equipment and its sane use would be a blessing.

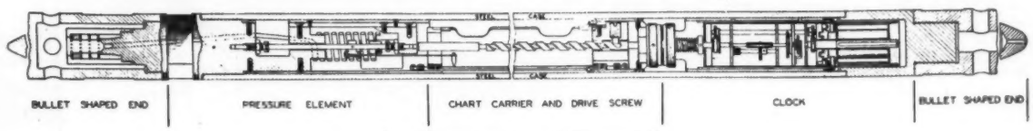
Modern Equipment in Petroleum Industry

With the discovery of shallow pools in large numbers all over the United States and other parts of the world by the simple process of drilling holes in what appeared to be favorable "oil country" the industry has passed on to that stage of development where scientific appliances of all kinds have been called into play and oil is now being brought from depths unthought of a few years ago and the 10,000-foot hole is no longer talked of as a possibility, but has actually been completed, and 12,000 and 14,000-foot wells are predicted.

Under the existing conditions within the petroleum industry the airplane may be called into use for a preliminary survey of a territory suspected of containing hidden oil pools. To use this for every occasion is not necessary but in some countries where great areas must be covered, such as in Canada, it has been found quite essential and necessary to preliminary prospecting. By flying and photographing the land it is possible to make quite accurate interpretations of geological conditions and in some cases map out structures that could not be seen by any other means.

Salt domes in Texas and Louisiana have been found by a study of the pictures taken by airplane survey and the change in vegetation has been so marked as to outline the high areas quite clearly. Outcrops of marker beds in West Texas

(Continued on Page 172)



Amerada pressure gauge (cross-section).

Aerial photograph of a portion of the Kilgore area in the East Texas oil fields.

—Courtesy of Edgar Tobin Aerial Surveys.

World's Largest Field Overproduced

All Thought of Price Thrown Aside in the Mad Rush to Complete and Produce Wells in East Texas New Pools

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

Of all the unwise oil developments the petroleum industry has known that in East Texas Field up to the close of June was the worst. There have been many "orgies of drilling" that have resulted in enormous overproduction and a lowering of the price of oil that brought hard times in other fields, but they did not equal the East Texas development in their ill effect upon the industry as a whole.

One may go back to the opening of the eighties and recall the tremendous development of the Bradford Field in Pennsylvania, where in 1881 the pipe lines took every barrel of oil of the 26,000,000 bbls. produced in the field that year and were obliged to store 18,000,000 bbls. of it because the world only needed 8,000,000 bbls. to provide the kerosene and lub oils it required. And one can come up to the Glenn Pool in Oklahoma, in 1906-07, which poured out oil that reached a peak of 120,000 bbls. a day, which the Prairie, Gulf and Texas pipe lines and a few small buyers took, but most of which they had to run to storage, again cheapening the price to a 20-cent basis, and a few years later the Cushing Field in the same State with its 300,000 bbls. per day peak, caused a storage campaign that brought crude oil down to around 30 cents, with much of it going at lower prices at private sale.

We have had dollar oil as a result of big fields that overproduced, and dollar oil was then considered a calamity, but never in the history of the business have American oil men sold 38 to 40 gravity crude for an average of 15 cents per barrel, with prices running from a nickel upward, as was done in East Texas in June of this year.

Years of effort to conserve excess crude in the ground, where excess crude belongs, were nullified by the action of the hordes of new operators that took possession of the East Texas area and started developing it regardless of price.

An oil well in East Texas, fully equipped to pump and with sufficient lease storage to handle the daily production costs $30,000. At 15 cents per barrell a well would have to produce about 225,000 bbls. to pay for itself, together with bonus and royalty, and 15 cents was the average field price in June.

World's Largest Field

The East Texas Field is the largest in area in the world's history. The Bradford Field consists of 105,000 acres, 85,000 acres of which is productive. The East Texas Field has not yet been defined but it is credited with 120,000 acres of productive sand. All the Seminole pools combined could be dropped into a corner of the East Texas Field, and next to them could be placed the Midway Sunset, Coalinga, Kern River, Santa Fe Springs, Long Beach and Huntington Beach and Kettleman Hills, and still there would be productive area left to accommodate a few other of the famous big fields of history such as Spindletop, Powell and Mexia. When this 120,000 acres, or more, of productive sand is compared with the productive area of Cushing, 21,850 acres; Burbank, 24,480 acres; Tonkawa, 3,420 acres; Glenn Pool, 18,590 acres; Smackover, 26,080 acres; and all the productive area of Butler County, Kansas (Eldorado-Augusta), fields, 23,750 acres, the size of the East Texas Field may be better appreciated, because it is bigger than Eldorado-Augusta, Cushing, Burbank, Tonkawa, Glenn and Smackover Fields combined. In other words it is a whale of a field; so big and so prolific of oil that it should have frightened its owners into a sense of its vastness and its almost illimitable richness, for there were fortunes for all of them if they retained sense enough to nurse the field along so that they could get the last dollar of its tremendous value.

Unwise Rush of Field Work

But up to the close of the first half year no such conservation of potential riches was evident; neither was there much of a sentiment to do anything else but to drill it to death regardless of price or ultimate crude oil recovery. A few practical individual oil men of long experience and good sense, together with executives of oil companies who have been fighting the conservation battle for years used their utmost endeavors to bring about sanity in development, but their influence was not as strong as that of company promoters, local politicians and others who were against any production restrictions whatever. Toward the close of the half year when the peril of East Texas became manifest even to the most ignorant, was there any right about face movement toward conserving the field and on June 30 it was seen that an extra session of the legislature for the passage of a law that would give the State of Texas undisputable authority over its natural resources seemed probable.

Long Search for New Pool

The first six months of 1930 witnessed a flow and ebb of wildcat exploitation in the counties surrounding Van Zandt County, due to the discovery of the Van Pool in that county, October 14, 1929, many independent operators and companies alike, seeking the Woodbine sand horizon in other localities. This sand is the basis of East Texas production, produces sweet, high gravity oil, and if property produced yields long lived wells which flow for an indefinite period then pump for a lengthy time after the pressure has been dissipated, and pumping required.

The first six months of 1931 witnessed the greatest drilling campaign that this district has ever gone through, with over 1,100 producers having been completed in the counties of Gregg, Rusk, Smith and Upshur due to the discovery of the Joiner well in Rusk County in October, 1930, followed by the completion of Ed Bateman's No. 1 Crim in the northern part of the county in December, 1930, and an extension of the area by Farrell and associate's No. 1 Lathrop in Gregg County on January 29, 1931, opening up a pool which has been proven for a length of 35 miles north and south, 9 miles in width at the northern end, 2½ miles wide at Kilgore and approximately 5½ miles in width in the Joiner or Henderson area.

These three discoveries set the district on fire in regard to an extensive drilling campaign. Companies and independent operators have been wildly drilling their acreage held in Rusk, Gregg, Smith and Upshur Counties, and every available acre in the four counties has been leased, as well as practically all the acreage in the surrounding counties, and while wells have been going down in the vicinity of the discoveries, wildcatting has been going on in these counties, and the adjacent counties of Harrison, Nacogdoches, Wood, Titus, Cass, Panola, Morris, Marion, Rains, Anderson, Henderson, and other counties located on the eastern side of the State.

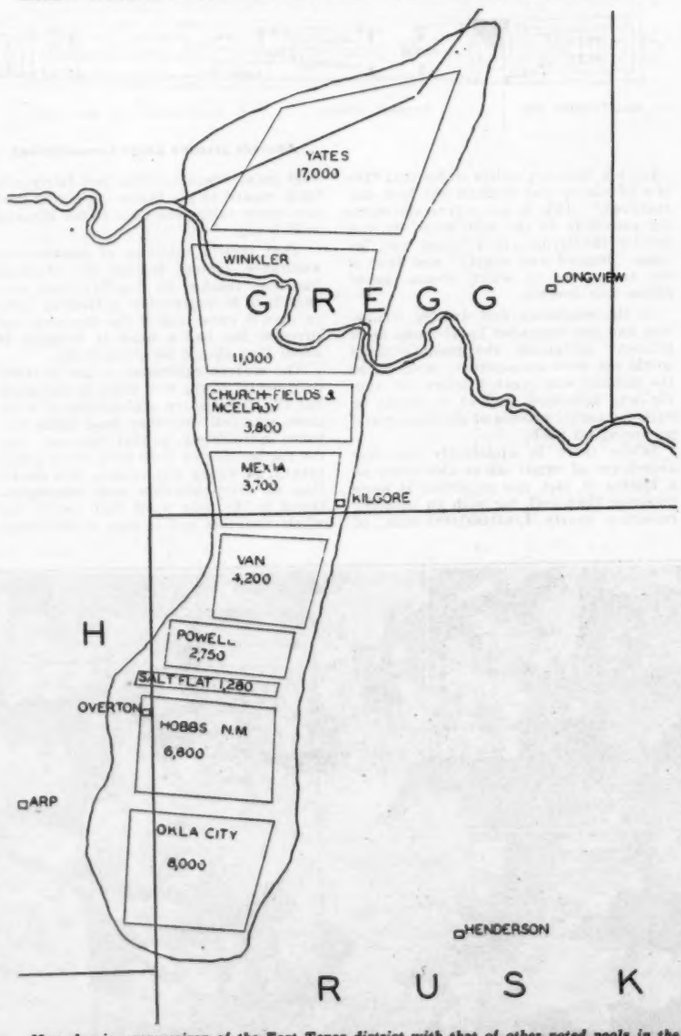
After many dry wildcats had been drilled in counties surrounding Van Zandt, following the boom which resulted from the discovery of that pool in 1929, wildcatting had subsided to but very few tests in the district. When the Joiner well was brought in, royalty and lease buying assumed renewed importance, other wildcats were drilled in nearby counties, and the district took on a more active appearance. But it took the Bateman and Farrell discoveries to set the district humming with activity, bringing all companies and operators to the realization that an enormous pool existed in the district, caused the industry to sit up and take notice of the possible outcome of the vast situation.

Slow to See Its Value

Many geologists, company land men and executives did not approve of the new area, consequently individuals, firms and small companies bought the largest holdings, both in scattered acreage and blocks, many of which have later been sold to the bigger companies that had held off from purchasing in the district. Now the pool has been extended to gigantic proportions, proving up one of the largest, if not the largest, fields in the world, situated not far distant from coastal ports, thereby placing it in an exceptionally strategic position for marketing facilities, making the oil especially desired due to its high quality, richness in gasoline content and to short and less expensive transportation hauls.

Such a situation, coupled with producing a majority of the properties wide open developed a production that has reflected upon the entire industry, bringing down prices intermittently until at the end of June oil in East Texas was selling as low as 6 cents per barrel in one pool, and 10 cents per barrel throughout the district, with a 15-cent average price

EAST TEXAS COMPARED WITH OTHER NOTED FIELDS



Map showing comparison of the East Texas district with that of other noted pools in the Mid-Continent. The total potential producing acreage is placed at from 100,000 to 125,000 acres, but on this map we have used an estimated potential of 110,000 acres. The sum total of the other pools shown on the map is 58,530 acres, which is 51,470 acres less than the entire East Texas district which is not entirely defined as yet, and may prove several hundred more acres good for production. The eastern limits of the fields have been defined, and some parts on the western side have been defined. Production in Upshur may be extended still farther north of the designating line shown on this map, and production may be extended still farther west in Gregg. However, Gladewater is about the defining point in the northwestern part of the county. Production cannot be extended much farther south of the Joiner Pool, and water has been encountered in two wells in Smith County marking the western limits of the pool. Estimated potential production per acre is placed at from 12,000 bbls. to more than 20,000 bbls. The dip per mile in the Lathrop or Longview area is 17 feet, the dip in the Kilgore area is 50 feet and the dip in the Joiner area is said to be 25 feet, marking considerable difference in the formations in the pools.

FOR PERFECT PERFORMANCE

Boltless Hose Coupling

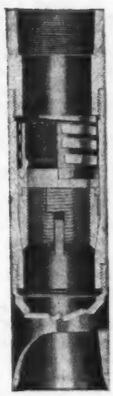
BOLTLESS HOSE COUPLING

Made of special alloy steel, easily installed, tightened or removed. Nozzle withstands high velocity pressure of sand laden drilling fluid.

Wedge principle of application allows high compressibility of hose on nozzle preventing leaks under extremely high pressures.

Set screws retain wedges in place regardless of vibration and working conditions.

Made especially to meet the demands of high steam and water pressure required by improved drilling equipment.



Releasing and Circulating Overshot

RELEASING AND CIRCULATING OVERSHOT

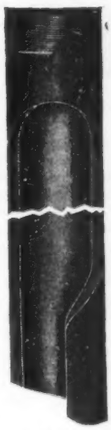
The thrill of Perfect Performance comes when a tool will take the place of two or three fishing tools, and will save time and trouble. American Overshots will catch drill pipe, coupling or tool joint. It releases from any point. The slips which are keyed in the bowl have left hand threads and the release is accomplished by rotating to the right.

The standard guide is interchangeable with the wall hook and milling shoe.

These features save many a run in and out of the hole.

When the fish is caught, the rubber packer makes a tight joint between the overshot and fish; this assures circulation.

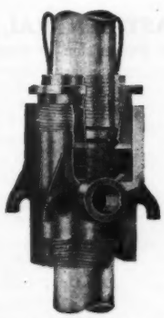
You, too, may know the thrill of Perfect Performance with an American product.



Forged Steel Wall Hook

CASING SUSPENDER AND BLOWOUT PREVENTER

The American Casing Suspender and Blowout Preventer is designed and constructed to prevent blowouts between strings of casing and to allow suspension of casing at setting points. Equipped with a special composition packing, prepared to resist salt and sulphur water.



Casing Suspender and Blowout Preventer

The body of the suspender is a one-piece bowl which permits tie-down to be made to the four ears without damage to the special packing because of connection necessary as in some of the older types. The bowl has a male A.P.I. casing connection on top of body which makes it possible to screw on swedge nipple or make any other desired connection.

Exclusive Distributors

CACTIZONA WATER TREATMENT

Mid-Continent Area

AMERICAN IRON & MACHINE WORKS CO.

OKLAHOMA CITY, U. S. A.

MANUFACTURERS OF OIL FIELD EQUIPMENT

American Releasing and Circulating Overshots
American Rock Bit Wrenches
American Milling Shoes
American Flexible Coupling for Rock Bit Lubricators
American Steel Tool Houses
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American Forged Steel Wall Hooks
American Rock Bit Breakout Blocks
American Paraffin Bits
American Forged Steel Drill Collars
American Female Die Nipples
American Releasing and Circulating Spears
American Tapered Taps
American Forged Steel Subs
American Rotary Shoes
American Cone Fishing Baskets
American Steam Lubricators
American Side Tracking Mills
American Combination Reverse and Throttle Levers
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American Myracle Sucker Rod Sockets
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American Drill Pipe Float Joints
American Casing Suspender and Blowout Preventer
American Lead Plug
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American Steel Whipstocks
American Inside Pipe Cutter for Drill Pipe or Casing
American Adjustable Steel Rig Braces
American Fish Tail Bits
American Pipe Rackers
American Boltless Hose Clamp
American Shot Packed Barrel
American Cactizona Water Treatment

AMERICAN PRODUCTS SOLD THROUGH LEADING SUPPLY STORES

during June in the whole East Texas Field.

Major pipe line companies are continuing to lay trunk lines into the district, and as soon as some of the lines now under construction, are completed there will be a greater outlet for the district than the present daily production of the field.

Outside Drilling Failures

Wildcatting in the counties surrounding the four producing counties is gradually decreasing as dry holes are being plugged in the various parts of the counties, proving those areas dry, but there remains many such tests going down, 8 wildcats drilling in Rusk, 7 in Upshur, 13 in Smith County, 9 in Cass, 7 in Cherokee, 11 in Harrison, 4 in Marion, 4 in Morris and 17 in Nacogdoches.

At the close of the half year it had become rather difficult to obtain help in drilling a wildcat test, and as many of the independent operators and wildcatters have money invested in leases in the producing area, the tendency to wildcat had been cut to a minimum. Wildcatting has lost its romance for the present with oil going begging, and the operator realizes that even though he did bring in a good well in another part of the district at this time, his chances for gaining a pipe line outlet would be exceptionally slim, consequently he is content to stay with the herd and try to make his share in the general scramble which is going on in the producing area.

More Oil Than Outlet

With the 1,149 producing wells in the East Texas district, the daily potential has not increased as might be expected, due to the fact that many of the wells are shut in for pipe line connections; some have gone dead on production, and others have fallen off to such an extent that they are now being pumped.

Pool Potentials

The last potential rating given the field showed the Lathrop Pool having a daily potential of 345,344 bbls. from 146 wells; the Joiner Pool having a potential of 772,403 bbls. from 358 wells, and the Kilgore Pool having a daily potential of 908,784 bbls. from 384 wells, the field not averaging 3,000 bbls. per well according to this report. With 1,149 producers in the district as at the present time the potential should be near 3,000,000 bbls. in 24 hours.

Ed Bateman's No. 1 Mrs. Lou Della Crim, located in the Elbridge G. Sevier Survey, 10 miles north of the Joiner Pool, northern Rusk County, was a potential extensioner of the first pool, and by drilling on intervening leases, connection of the two formerly separated areas has been accomplished, making one large field for Rusk County. The Bateman well cored saturated Woodbine sand with streaks of shale at 3,629 feet and 6⅝-inch casing was set at 3,624 feet, total depth of the hole standing at 3,642 feet. When plug was drilled and the well tested it flowed 308 bbls. in 20 minutes, making the well look good for 22,000 bbls. per day, considerably larger than the Joiner discovery. Soon after Bateman brought in the well the Humble Oil & Refining Co. opened negotiations with him for the purchase of the well and approximately 1,500 acres around it, paying $1,500,000 for the property and laying a 10-inch line to the well immediately to connect it with a loading rack constructed on the I.&G.N. Railroad, 1 mile to the northwest. This was the first outlet for the field.

Opening Lathrop Pool

J. E. Farrell and associates brought in the next discovery in the district, approximately 13 miles north of the Bateman discovery, in Gregg County. Intervening acreage between the two wells has also been drilled and proven for production, thereby extending and connecting these two areas, and linking the three discovery wells, making one large field covering an estimated area of 125,000 acres which engineers and economists rate good for producing from 10,000 to 25,000 bbls. per acre ultimate yield.

The Farrell discovery, located on the Lathrop farm in the William Robinson Survey, approximately 4 miles northwest of Longview in Gregg County was completed the latter part of January, 1931. Top of the Woodbine sand was logged at 3,750 feet and 6⅝-inch casing was cemented at 3,550 feet. Total depth of the hole sets at 3,687 feet, as when drilled in. The first 20-minute test the well made 36 bbls. through a seven-eighths inch choke, and flowed 320 bbls. the first hour through 3-inch tubing on a half-inch choke. The well was later proven as good for around 30,000 bbls. per day.

This well definitely proved to the major companies, who had formerly been skeptical about the area, that a field had been opened which probably had no equal in the world, consequently these companies began sending in scouts, geologists, engineers, land men and others, leasing whatever they could find unleased, and taking leases from brokers and independents who had gone in early acquired cheap leases, and were willing to sell for a fair profit.

The Arkansas Fuel Oil Co., a Cities Service subsidiary, had an interest in the Farrell well and held about 3,000 acres surrounding it, Farrell and associates holding 3,500 acres also. Soon after the well was completed the former company started negotiations with Farrell for the purchase of his interest in the well, and his leases, and the deal was finally closed for around $3,500,000, Farrell and associates selling all of their holdings and interest in the well. The Arkansas Fuel Oil Co. laid 3 miles of 6-inch line from the well to a loading rack located on the Texas & Pacific Railroad at Willow Springs and started shipping oil to the Louisiana Oil & Refining Co.'s refinery at Shreveport, this company being an associated company of the former. Arkansas Fuel Oil Co. now has an 8-inch line direct from its Gregg County leases to Shreveport.

Sinclair in Early

The Sinclair Oil & Gas Co. was the first large company to enter the Joiner area, Rusk County. It purchased many leases and started activities immediately. This company also purchased many leases throughout the district, having formerly bought some extra good leases at a low price. It is now one of the most active operators in the field.

Nearly all important companies operating in the Mid-Continent gradually entered the East Texas district, the Continental Oil Co. and Atlantic Oil Producing Co. being the latest large companies to enter. The late ones have been paying extra high prices for acreage. The Atlantic Oil Producing Co.'s associated company, the Atlantic Pipe Line Co., is surveying for a 10-inch line from its properties in Gregg County to Port Arthur, expecting no doubt to produce its properties on a big scale if proration is not made effective. The Continental Oil Co. has not started drilling on any of its properties. It has no pipe line, and has not reported its intention to build a line into the district.

The first meeting in regard to proration in the East Texas district was called by Carl Estes, a Tyler newspaper man for January 15, at Tyler. The meeting was dominated by East Texans, many of whom were not oil producers. The question of prorating the district was discussed, the majority at that time being against prorating this new district. Since that first meeting, many other meetings have been held at various towns in the district, at Fort Worth, Dallas and Austin in regard to curtailing activities and production in the district. At the close of the half year nothing had been settled, three proration orders and as many different plans going unobserved by many operators. Production continued to rise and crude oil prices to fall in proportion.

Salt Water Appears

Magnolia Petroleum Co.'s No. 1 Florey and Burton Drilling Co.'s No. 1 Florey in the Peter Holmes Survey, in the western part of the Kilgore Field, northern Rusk County, were the first two wells in the district to encounter salt water with oil production, showing operators that they would have to contend with water when wells are drilled too close to the water table, which is sub sea datum minus 3,320 feet. Since these wells encountered salt water many others have shown large quantities of water, while still others show up less than 1 per cent water. Some of those which were making a considerable amount of water, such as the Magnolia Petroleum Co.'s No. 1 Florey, and Gulf Production Co.'s No. 1 Birdsong, were plugged back successfully to shut off water. However, those wells which are near the water table, but which have not yet shown any water, may soon expect to have the problem on their hands if the wells are not pinched in, for flowing them open is sure to draw in the water, eventually saturating all of the wells in the field.

Before the next six months passes many of the wells in the Kilgore Field, or along the western side of the producing area may be making considerably more water than oil, and methods for caring for the large volume of expected water are now being sought by an engineering committee which is making a study of the field and this situation, with the hope of finding some plan which will work effectively and without great cost. The Humble Oil & Refining Co. and Magnolia Petroleum Co. have excavated two large vats to take care of a small amount of water on their leases in the Kilgore Pool, but due to the porous sand, and the large volume of water that may be expected later, such vats will be of little use. Settling vats cannot be used, due to the amount of annual rainfall in that district, the atmosphere not being conducive to evaporation. Rivers, lakes and streams cannot be used because of laws preventing pollution, and the rivers in this district not being large enough to carry off the water without injuring rice fields, and other farms along its course, and contaminating the water used by towns along the river.

The low price of natural gasoline, and the small production of wet gas in the wells in the East Texas district have conspired to exclude the construction of

(Continued on Page 127)

EAST CENTRAL TEXAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
BOGGY CREEK:							
Daily average	2,890	2,646	2,403	2,219	1,954	1,844	
Month	89,580	74,088	74,493	66,574	60,578	55,331	420,644
CEDAR CREEK:							
Daily average	45	35	44	27	31	30	
Month	1,405	980	1,362	806	964	895	6,412
CURRIE:							
Daily average	304	276	276	272	286	277	
Month	9,430	7,728	8,562	8,160	8,867	8,334	51,081
HILL COUNTY:							
Daily average	30	30	28	28	27	16	
Month	920	840	870	841	832	485	4,788
MEXIA:							
Daily average	3,822	3,122	3,434	3,541	3,298	3,426	
Month	118,476	87,416	106,449	106,235	102,236	102,795	623,607
NIGGER CREEK:							
Daily average	178	156	163	155	146	151	
Month	5,535	4,368	5,059	4,642	4,521	4,526	28,651
POWELL:							
Daily average	5,077	4,841	4,561	4,168	3,980	4,064	
Month	157,401	135,548	141,399	125,049	123,383	121,922	804,702
RICHLAND:							
Daily average	111	121	117	104	70	93	
Month	3,450	3,388	3,623	3,108	2,179	2,777	18,525
VAN:							
Daily average	27,259	30,642	35,375	39,314	44,224	49,208	
Month	845,015	857,976	1,096,638	1,179,415	1,370,958	1,476,234	6,826,231
WORTHAM:							
Daily average	599	483	539	504	482	480	
Month	18,570	13,524	16,704	15,120	14,935	14,387	93,240
Daily average	40,315	42,352	46,940	50,332	54,498	59,589	49,049
Total first six months 1931	1,249,782	1,185,856	1,455,154	1,509,950	1,689,453	1,787,686	8,877,881

EAST TEXAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
LATHROP:							
Daily average	.....	3,984	12,323	44,514	64,138	72,038	
Month	.....	111,540	382,003	1,335,424	1,988,293	2,161,148	5,978,408
KILGORE:							
Daily average	.....	3,754	39,440	138,891	130,189	168,909	
Month	.....	105,103	1,222,638	4,166,728	4,035,868	5,067,260	14,597,596
JOINER:							
Daily average	3,565	17,325	41,816	65,920	117,244	115,071	173,271
Month	110,515	485,097	1,296,284	1,977,604	3,634,549	3,452,131	10,956,180
Daily average	3,565	25,063	93,579	249,325	311,571	356,018	174,211
Total first six months 1931	110,515	701,739	2,900,925	7,479,756	9,658,710	10,680,539	31,532,184
Total East Central and East Texas—							
Daily average	43,880	67,415	140,519	299,657	366,069	415,607	223,260
Total first six months 1931	1,360,297	1,887,595	4,356,079	8,989,706	11,348,163	12,468,225	40,410,065
Total first six months 1930	669,533	673,455	813,799	1,030,567	1,194,501	1,229,886	5,616,731
Total first six months 1929	675,021	579,471	666,569	605,389	608,505	577,820	3,712,775
Total first six months 1928	797,384	727,284	780,967	737,455	736,122	706,269	4,475,481
Total first six months 1927	1,479,568	398,208	1,442,554	1,254,690	1,066,028	1,032,720	7,673,768
Total first six months 1926	1,928,851	759,548	1,822,614	1,763,970	1,703,853	1,557,780	10,536,616
Total first six months 1925	6,376,886	518,416	4,888,917	4,111,490	3,863,275	3,379,740	27,138,824
Total first six months 1924	4,177,591	241,507	5,073,367	4,629,510	4,283,859	3,918,390	26,324,224
Total first six months 1923	2,010,702	780,465	1,996,015	1,833,301	1,928,871	2,209,222	11,758,675

Oversupply Slows Work in Oklahoma

Oklahoma City Overshadows Other Potentially Good Areas in State and Half Year's Field Operations Slumped

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

The first six months of 1931 interest in Oklahoma was centered in the Oklahoma City Field where operators had increased the rated potential production to more than 8,000,000 bbls. a day on the last open flow test taken April 1. The development became so rapid that the Oklahoma Corporation Commission issued proration orders allowing only a small percentage of the oil to be produced each day. The allowable production from the field was gradually increased. The first of the year only 85,000 bbls. a day was permitted, but it was increased to 175,000 bbls. a day in June. While the allowable was increased the market price of oil, owing to the development of East Texas, was decreased from $1.07 for 40 gravity oil and above in January to 37 cents a barrel for the same gravity the first of June, making the posted price the lowest it had been for 20 years. The corporation commission increased the daily allowable flow of oil from the field the last four days of June to 200,000 bbls. The increase was due to the market demands.

A survey of the wells completed in the State during the first half of the year shows less than half the usual number completed compared to other half years. A total of 714 wells were completed with an initial production of 1,431,798 bbls. of oil, and of the total number 169 wells were completed in the Oklahoma City Field with an initial production of 1,296,163 bbls. The balance of the State completed only 545 wells with an initial production of 135,635 bbls. The large flow of oil from the Oklahoma City Field restricted the development of other areas in the State.

Events in Oklahoma City Field

The Oklahoma City Pool ranks among the great oil fields of the world. During the past six months the field was extended until 801 wells had been completed with a rated potential of more than 8,000,000 bbls. of oil a day. The wells are allowed to produce only four hours every 12 days. The last potential gauge was taken in the field April 1, 1931. The Oklahoma Corporation Commission fixed the potential gauge of the field at 2,500,000 bbls. a day during the month of June.

Water Intrusion

In the Arbuckle lime area approximately 116 wells were completed all of which are now making water. Twenty-seven of these wells have ceased to make oil in paying quantities and have been plugged back to shallower gas sands. Many of the others are yielding at least 75 per cent water and it is believed that the end of the Arbuckle lime production is not far distant.

Water has also made its appearance in the lower Simpson sand formation in parts of the field and at this time approximately 85 sand wells are making water. Only a few Wilcox sand wells are showing water, they being located in the south and southwest edges of the field.

Although the Oklahoma City Field has been under proration since early in its history it has produced approximately 66,000,000 bbls. of oil up to July 1, 1931, from 801 completed wells.

Gas-oil Ratios

Early in the year a survey of the Oklahoma City Field indicated that the gas pressure was declining. It was estimated at that time the gas-oil ratio was 3,000 feet of gas to each barrel of oil produced. The loss of the gas energy occurring in the field was believed to be caused by the way the wells were cased and operated. There was an excess of gas being produced in the field over the amount that could be used.

During the first six months of 1931 the water intrusion became an important factor in the daily production. On February 1, a check revealed that 154 wells were making water, 34 of which were sand wells. The water showing spread and in June 205 wells were showing water. The water was appearing in the lower Simpson sand zone, namely the Johnson, School Land, and the Green shale sands, from which at least two-thirds of the production in the field is obtained. About 400 wells in the Oklahoma City Field are producing from the Johnson sand, and about 104 wells from the School Land and Green shale sands. The first water began showing on the west edge of the Johnson sand horizon in November, 1930, in Section 2-11-3w, and since that time it has been traveling up structure, a distance of more than a mile on the surface. The water has been spreading at an alarming rate when it is considered that the wells have been allowed to produce less than 24 hours out of each month, indicating the water is moving fast.

It is believed the water encroachment starts at the edge or where the producing sands make contact and it has started in the Johnson sand and the School Land sands and in a few of the Wilcox sand wells. The water follows the porous part of the sand and travels slower in a tight part of the sands.

Many believed that the water intrusion would reduce the ultimate recovery of oil from both the School Land and Johnson sands. The water encroachment has already reduced the cumulative re-

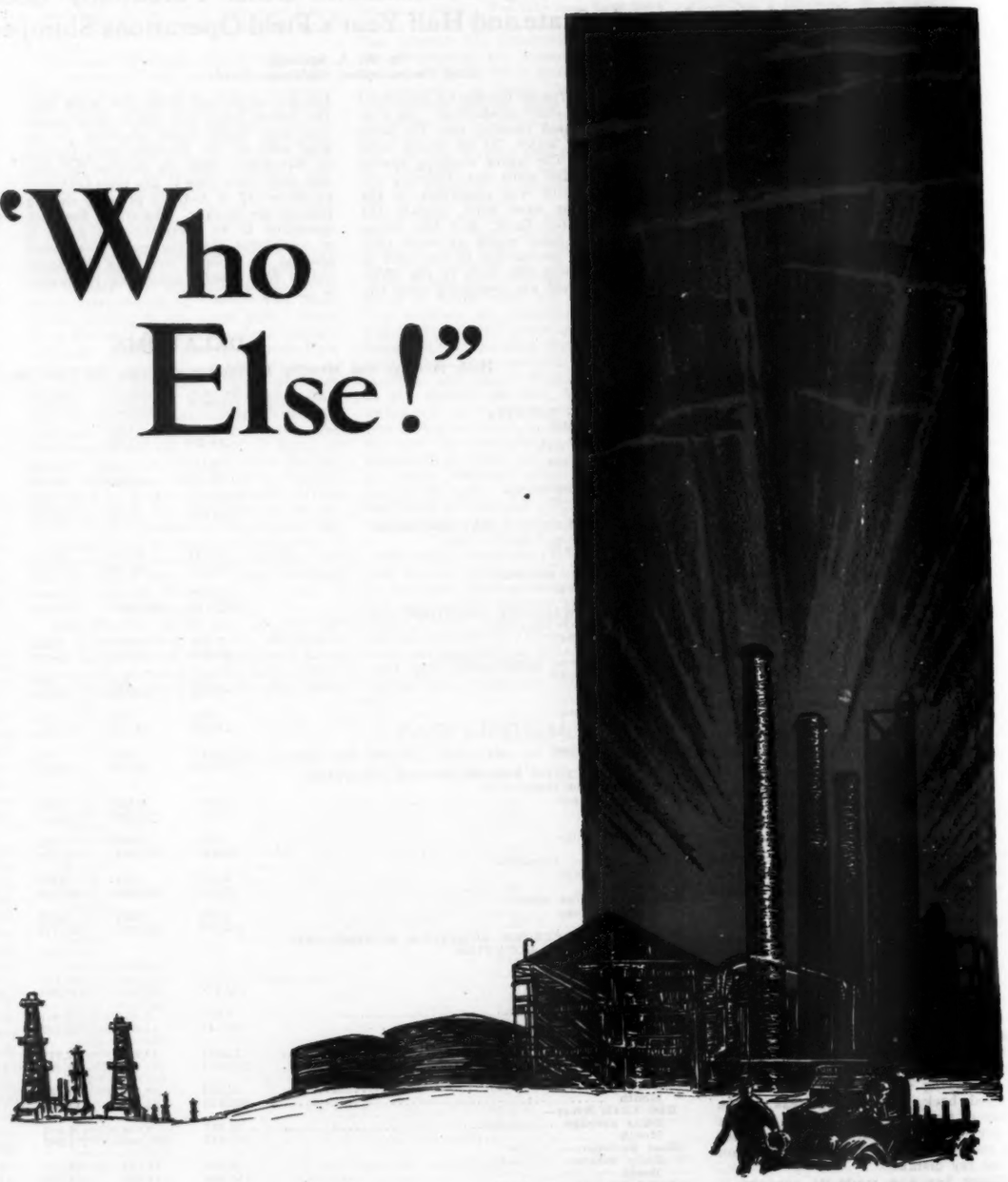
OKLAHOMA

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
WASHINGTON COUNTY:							
Daily average	2,231	4,819	5,114	5,209	5,006	4,916	
Month	69,161	134,932	158,534	156,270	155,186	147,480	821,563
NOWATA COUNTY:							
Daily average	2,617	5,104	4,829	4,759	4,710	4,683	
Month	81,127	142,912	149,699	142,770	146,010	140,490	803,008
ROGERS COUNTY:							
Daily average	1,914	1,503	1,515	1,510	1,533	1,543	
Month	59,334	42,084	46,965	45,300	47,523	46,290	287,496
OSAGE AND EASTERN KAY COUNTIES:							
Burbank—							
Daily average	11,848	12,940	12,687	12,670	12,955	13,010	
Month	367,288	362,320	393,297	380,100	401,605	390,300	2,294,910
Osage, outside Burbank—							
Daily average	18,953	18,795	18,095	18,342	19,386	18,653	
Month	587,543	526,260	560,945	550,260	600,966	559,590	3,385,564
TULSA AND WAGONER COUNTIES:							
Bird Creek, Owasso, etc.—							
Daily average	1,888	2,773	2,266	2,212	2,258	2,249	
Month	58,528	77,644	70,246	66,360	69,998	67,470	410,246
Red Fork, Sand Springs, Bruner—							
Daily average	978	966	948	941	1,533	945	
Month	30,318	27,048	29,388	28,230	47,523	28,350	190,857
Bixby, Leonard—							
Daily average	885	859	1,272	877	764	749	
Month	27,435	24,052	39,342	26,310	23,684	22,470	163,383
Broken Arrow, Coweta—							
Daily average	842	852	781	690	752	663	
Month	26,102	23,856	24,211	20,700	23,312	19,890	138,071
TULSA, OKMULGEE AND MUSKOGEE COUNTIES:							
Okmulgee and Beggs—							
Daily average	1,927	1,892	1,877	1,815	1,861	1,802	
Month	59,737	52,976	58,187	54,450	57,691	54,060	337,101
Mounds—							
Daily average	1,279	1,253	1,291	1,278	1,110	1,083	
Month	39,649	35,084	40,021	38,340	34,410	32,490	219,994
Bald Hill and Haskell—							
Daily average	2,153	1,936	1,840	1,802	1,620	1,710	
Month	66,743	54,208	57,040	54,060	50,220	51,300	333,571
Morris, Boynton, Cole—							
Daily average	1,429	1,424	1,412	1,411	1,293	1,303	
Month	44,299	39,872	43,772	42,330	40,083	39,090	249,446
OKMULGEE, OKFUSKEE, SEMINOLE, HUGHES AND POTTAWATOMIE COUNTIES:							
Seminole City—							
Daily average	13,336	13,344	13,657	13,646	13,831	13,715	
Month	413,416	373,632	423,367	409,380	428,761	411,450	2,460,006
East Seminole—							
Daily average	1,953	1,952	1,953	1,816	1,728	1,716	
Month	60,543	54,656	60,543	54,480	53,568	51,480	335,270
Bowlegs—							
Daily average	12,377	12,577	13,977	14,391	14,756	14,350	
Month	383,687	352,156	433,287	431,730	457,436	430,500	2,488,796
Little River—							
Daily average	22,053	22,580	24,762	23,948	25,405	24,103	
Month	683,643	632,240	767,622	718,440	787,555	723,090	4,312,590
East Little River—							
Daily average	10,237	9,606	8,815	6,608	5,572	5,225	
Month	317,347	268,968	273,265	198,240	172,732	156,750	1,387,302
East Earlsboro—							
Daily average	18,350	18,282	18,664	18,010	16,558	16,837	
Month	568,850	511,896	578,584	540,300	513,298	505,110	3,218,038
Earlsboro—							
Daily average	17,893	10,161	18,584	18,978	19,267	17,675	
Month	554,683	284,508	576,104	569,340	597,277	530,250	3,112,162
South Earlsboro—							
Daily average	10,102	7,641	6,542	6,489	5,847	5,413	
Month	313,162	213,948	202,802	194,670	181,257	162,390	1,268,229
Searight—							
Daily average	5,480	5,502	5,252	4,586	4,274	4,312	
Month	169,880	154,056	162,812	137,580	132,494	129,360	886,182
Mission—							
Daily average	6,631	6,405	7,429	8,405	8,865	8,209	
Month	205,561	179,340	230,299	252,150	274,815	246,270	1,388,435
Carr City—							
Daily average	12,750	12,744	12,559	12,680	13,189	12,666	
Month	395,250	356,832	389,329	380,400	408,859	379,980	2,310,650
Maud—							
Daily average	2,745	2,560	2,541	2,522	2,552	2,557	
Month	85,095	71,680	78,771	75,660	79,112	76,710	467,028
Total Seminole Field—							
Daily average	133,907	123,354	134,735	132,079	131,844	126,778	
Month	4,151,117	3,453,912	4,176,785	3,962,370	4,087,164	3,803,340	23,634,688
Allen—							
Daily average	12,984	12,669	12,738	11,754	11,879	11,614	
Month	402,504	354,732	394,878	352,620	368,249	348,420	2,221,403
Konawa—							
Daily average	16,362	15,467	13,299	10,199	9,628	8,506	
Month	507,222	433,076	412,269	305,970	298,468	255,180	2,212,185
Asher—							
Daily average	9,653	8,817	8,291	7,969	8,018	7,910	
Month	299,243	246,876	257,021	239,070	248,558	237,300	1,528,069
Pearson-St. Louis—							
Daily average	20,957	20,294	23,272	23,388	22,296	22,514	
Month	649,667	568,232	721,432	701,640	691,176	675,420	4,007,567

(Table Continued on Next Page)

"Who Else!"



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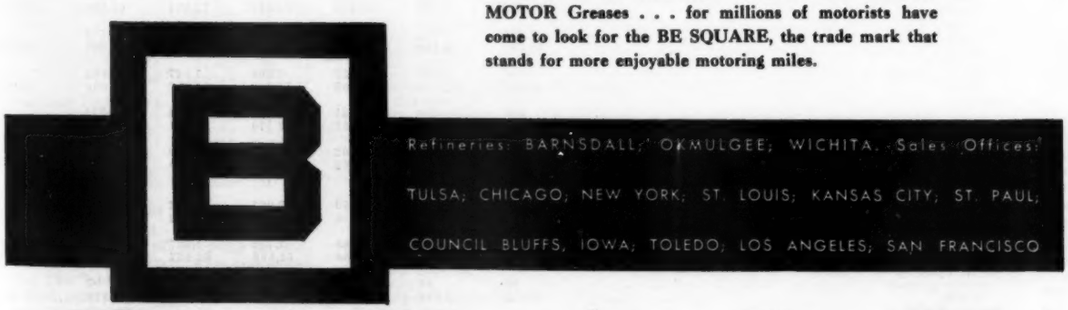
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covery of oil from the Silicious lime area, and many believe it will later reduce the recovery of oil from the Wilcox sand zone.

Prairie Quits Buying

At the close of the year 1930 the Prairie Oil & Gas Co. announced it would cease as a buyer of crude oil. This left approximately 31,500 bbls. of oil without a pipe line connection. The districts affected were southern Kansas and northeastern Oklahoma, where thousands of wells were left without any outlet. The amount of the distress oil was estimated to be divided between Kansas and Oklahoma with 11,000 bbls. in Kansas and 20,500 bbls. in Oklahoma. All but a few barrels of this distress oil was being connected by other purchasers in May, 1931. Some of the oil was being handled by an exchange agreement, and part by a five-year contract.

West Chandler Extended

The West Chandler Pool, in Lincoln County, in which the deep sand production was discovered in April, 1930, and which has been curtailed from that time, was extended in February a half mile to the south by the Tom Slick Oil Co.'s No. 1 Althoff, NE cor. NW, Section 18-14-4, which started flowing at the rate of 75 bbls. an hour from the Simpson sand at 4,983-97 feet when the cement plugs were drilled. It made 312 bbls. of oil the first four hours. The well was drilled deeper and increased its flow to 100 bbls. an hour. Several offsets were started to the new well and when these were completed the pool had a total of 12 wells producing from the deep sand.

Wewoka Townsite Pool

The most active district in the Greater Seminole area was during the development of the Wewoka Townsite Pool, which was discovered in 1930, where early in January seven completed wells had a potential of 54,948 bbls. of oil a day, while the daily allowable production from the pool was only 4,000 bbls.

The largest well completed in the field was rated at 16,462 bbls. a day. It was the Mid-Kansas Oil & Gas Co.'s No. 2 Davis, NE cor. SE NW, Section 30-8-8.

The producing area was soon defined. It covered approximately 40 acres. The second serious fire happened on February 24.

Seminole Wildcats

Only a few wildcat tests were started in the Greater Seminole area during the past six months, and the majority of these were dry holes. An important well was completed which many believe opened a new producing area in April by R. H. Pierce & Co. and others' No. 1 Phillips, SW cor. SE, Section 8-9-6, Seminole County. It made 250 bbls. of oil from the Wilcox sand at a total depth of 4,245 feet after a 40-quart shot.

Seminole's Fine Showing

The first open flow potential taken in the Greater Seminole area for 10 months was in March. The results of the tests indicated that the Greater Seminole area was still capable of production almost double the amount of of crude oil it had been producing under proration and it was found that the wells had not suffered because of the strict curtailment.

State Umpire Ray Collins announced that a difference of only 3,890 bbls. of oil in the potentials figured on the decline curve and the 10-day open flow. The open flow gauge was 359,005 bbls. of oil and that figured on the 3 per cent decline curve was 355,115 bbls. of oil, including the flush pool at Wewoka.

The activity in southern Oklahoma was mostly limited to development work in the proven areas. A new producing district was found in Marshall County, near the Red River. McCrory and McCrory's No. 1 Adams, NE cor. SW SE, Section 31-7s-6, when first drilled into the pay sand at 523-26 feet, filled up 500 feet with oil. It later swabbed 40 bbls. of fluid which was about 50 per cent water. The same company completed another oil well about a mile north proving considerable territory. The well was No. 1 Little, NW cor. SW, Section 30-7s-6, which bailed 110 bbls. of fluid from sand at 486-88 feet. The second well was completed in June indicating the area is favorable for developing future production.

Deeper drilling in Grady and Caddo Counties is expected to be the next major development. The two important pools in those counties are producing from shallow horizons, with the exception of a few wells in the Cement Field which found gas and oil at 4,800 feet, indicating the possibilities in the deep formations.

In the Cement Pool, the deep development work was on the east dome of the field in Section 2-5-9w, and in Section 11-5-9w, where the highest part of the structure appears. All the production from the Chickasha Field has been gas and very few attempts have been made to drill below the gas horizon.

The most interesting well during the first half of the year in the Cement Field was Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Co.'s No. 6 Preston-Culp, NW cor. NE NE, Section 6-5-9w, on the west edge of the producing area, which cored a sand from 6,047-76 feet with a showing of oil.

Western Wildcats

Development in other western counties in the State was quiet owing to the strict curtailment of all oil production. In January another deep test was completed in Harper County. The Empire Oil & Refining Co.'s No. 1 Bruce, C NE SW SW, Section 12-25-20w, was drilled to a total depth of 7,985 feet and abandoned with nothing showing. The formation at that depth was so hard that it was necessary to change bits as often as four in 24 hours. The other deep test drilled in the county was Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Section 14-26-24w, which was drilled to a total depth of 8,589 feet, the deepest hole ever drilled in Oklahoma, and it was plugged back to 5,300-5,400 feet and completed a 12,000,000-foot gas well.

Operations in eastern Oklahoma were reduced during the first part of the year owing to the large supply of crude oil in the flush areas of the State. The Quin-

OKLAHOMA (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
Sasakwa—							
Daily average	4,137	3,762	3,192	2,719	2,365	2,104	
Month	128,247	105,336	98,952	81,570	73,315	63,120	550,540
Beebe—							
Daily average	2,498	2,510	2,288	2,563	2,571	2,510	
Month	77,438	70,280	70,928	76,890	79,701	75,300	450,537
Henryetta, Deaner-Lyons, etc.—							
Daily average	5,861	5,556	5,418	5,337	5,609	5,217	
Month	181,691	155,568	167,958	160,110	173,879	156,510	995,716
Wewoka—							
Daily average	6,115	8,128	8,453	8,954	8,884	8,635	
Month	189,565	227,584	262,043	268,620	275,404	259,050	1,482,266
Cromwell—							
Daily average	4,206	4,810	4,657	4,808	5,485	4,972	
Month	130,386	134,680	144,367	144,240	170,035	149,160	872,868
Papoose-Gilcrease—							
Daily average	1,930	2,075	2,018	1,996	2,131	2,007	
Month	59,830	58,100	62,558	59,880	66,061	60,210	366,639
Jarvis-Holm—							
Daily average	252	258	221	227	229	226	
Month	7,812	7,224	6,851	6,810	7,099	6,780	42,576
Weleetka—							
Daily average	955	1,065	881	894	718	723	
Month	29,605	29,820	27,311	26,820	22,258	21,690	157,504
Holdenville—							
Daily average	369	456	419	451	378	406	
Month	11,439	12,768	12,989	13,530	11,718	12,180	74,624
Yeager—							
Daily average	372	476	456	421	463	451	
Month	11,532	13,328	14,136	12,630	14,353	13,530	79,509
Miscellaneous—							
Daily average	275	280	267	270	263	257	
Month	8,525	7,840	8,277	8,100	8,153	7,710	48,605
CREEK AND TULSA COUNTIES:							
Glen Pool, Jenks, Kiefer—							
Daily average	6,580	5,914	5,825	6,734	5,447	5,411	
Month	203,980	165,592	180,575	202,020	168,857	162,330	1,083,354
Sapulpa and Fisher—							
Daily average	424	433	388	421	476	440	
Month	13,144	12,124	12,028	12,630	14,756	13,200	77,882
Cushing, Shamrock—							
Daily average	12,429	12,829	13,928	13,506	13,223	13,017	
Month	385,299	359,212	431,768	405,180	409,913	390,510	2,381,882
Bristow, Kellyville and Depew—							
Daily average	11,813	11,654	10,960	10,680	10,098	10,008	
Month	366,203	326,312	339,760	320,400	313,038	300,240	1,965,953
Pickett Prairie and North Bristow—							
Daily average	1,597	1,635	1,511	1,491	1,417	1,362	
Month	49,507	45,780	46,841	44,730	43,927	40,860	271,645
Eastern Bristow or Slick—							
Daily average	4,288	4,310	4,183	4,104	4,496	4,110	
Month	132,928	120,680	129,673	123,120	139,376	123,300	769,077
PAWNEE COUNTY:							
Cleveland—							
Daily average	2,333	2,369	2,383	2,309	2,341	2,265	
Month	72,323	66,332	73,873	69,270	72,571	67,950	422,319
Keystone—							
Daily average	1,632	1,721	1,842	1,699	1,644	1,613	
Month	50,592	48,188	57,102	50,970	50,964	48,390	306,206
Jennings—							
Daily average	1,685	1,685	1,355	1,808	1,847	1,802	
Month	52,235	47,180	42,005	54,240	57,257	54,060	306,977
Otoe—							
Daily average	336	324	321	319	321	311	
Month	10,416	9,072	9,951	9,570	9,951	9,330	58,290
Ralston-Masham—							
Daily average	101	102	102	101	99	101	
Month	3,131	2,856	3,162	3,030	3,069	3,030	18,278
PAYNE COUNTY:							
Yale, Quay, Ingalls—							
Daily average	3,085	3,186	2,930	3,063	3,032	2,976	
Month	92,535	89,208	90,830	91,890	93,992	89,280	547,735
North Cushing—							
Daily average	1,457	1,927	1,580	1,752	1,727	1,694	
Month	45,167	54,236	48,980	52,560	53,537	50,820	305,300
South Cushing—							
Daily average	92	92	88	102	102	97	
Month	2,852	2,576	2,728	3,060	3,162	2,910	17,288
Mehan-Ripley—							
Daily average	1,274	993	994	1,140	1,114	1,083	
Month	39,494	27,804	30,814	34,200	34,534	32,490	199,336
OKLAHOMA COUNTY:							
Oklahoma City—							
Daily average	84,609	90,854	134,619	166,142	162,875	172,120	
Month	2,622,879	2,543,912	4,173,189	4,984,260	5,049,125	5,162,600	24,536,965
LINCOLN COUNTY:							
Stroud—							
Daily average	577	769	748	734	709	696	
Month	17,887	21,532	23,188	22,020	21,979	20,880	127,486
Davenport—							
Daily average	908	977	981	936	987	943	
Month	28,148	27,356	30,411	28,080	30,597	28,290	172,882
Kendrick—							
Daily average	147	191	197	201	191	190	
Month	4,557	5,348	6,107	6,030	5,921	5,700	33,663
Chandler—							
Daily average	1,280	1,373	1,350	1,293	2,414	2,117	
Month	39,680	38,444	41,850	38,790	74,834	63,510	297,108
KAY, GRANT AND NOBLE COUNTIES:							
Blackwell—							
Daily average	883	910	855	864	858	842	
Month	27,373	25,480	26,505	25,920	26,598	25,260	157,136
Vernon—							
Daily average	504	492	549	520	552	511	
Month	15,624	13,776	17,019	15,600	17,112	15,330	94,461
Otstot—							
Daily average	820	869	828	961	880	843	
Month	25,420	24,332	25,668	28,830	27,280	25,290	156,820
Deer Creek—							
Daily average	602	624	600	593	601	568	
Month	18,662	17,472	18,600	17,790	18,631	17,040	108,195

(Table Continued on Next Page)

ton gas field in Pittsburg County, was active on account of the necessary requirements of gas to supply the gas pipe lines that have been constructed into the area.

Wagoner, Muskogee and Okmulgee Counties had some development the first half of the year. Nothing sensational was found, the drilling was mostly in the proven areas in these counties.

A wildcat test of the Indian Territory Illuminating Oil Co. found a showing of oil. It is believed to be the first ever found in the county, which has considerable gas production. The test was No. 1 Holleman, C SW NE, Section 23-11-21, Haskell County, and the oil showing was found in sandy shale at 1,762-67 feet. The test later was completed as a dry hole at a total depth of 2,022 feet.

OKLAHOMA

Summary of Wells Completed First Six Months 1931

County—	Comp.	Prod.	Dry	Gas
Carter	7	10,797	8	0
Creek	75	2,926	27	17
Muskogee	53	210	28	15
Okfuskee	15	91	8	3
Seminole	60	86,684	16	5
Stephens	24	1,145	14	2
Oklahoma	169	1,296,163	5	1
Okmulgee	37	214	20	9
Osage	27	294	14	2
Pottawatomie	23	13,489	8	0
Wagoner	25	55	14	6
Hughes	11	520	4	5
Caddo	1	1,196	0	0
Cleveland	3	75	2	0
Coal	2	0	1	1
Comanche	4	0	4	0
Grady	9	0	0	9
Haskell	7	0	4	3
Jefferson	4	175	3	0
Kingfisher	1	0	1	0
Latimer	7	0	3	4
LeFlore	5	0	3	2
Lincoln	11	15,684	1	4
Marshall	11	25	9	0
Love	3	0	3	0
McIntosh	5	0	3	2
McClain	1	0	1	0
Pawnee	9	11	6	2
Payne	3	410	2	1
Pittsburg	18	0	5	13
Pontotoc	9	1,007	3	1
Tulsa	22	512	6	3
Washington	1	0	1	0
Woodward	1	0	1	0
Cotton	3	15	2	0
Harmon	1	0	1	0
Bryan	2	0	2	0
Cherokee	1	0	1	0
Texas	1	0	0	1
Atoka	1	0	1	0
Noble	8	0	5	3
Beckham	1	0	0	1
Garfield	4	100	2	1
Harper	1	0	1	0
Kay	3	0	2	1
Ttl. 6 mos. 1931	714	1,431,798	247	117
Ttl. 6 mos. 1930	1,898	2,470,015	534	191
Difference	1,184	1,038,217	287	74

Summary by Months

Month—	Comp.	Prod.	Dry	Gas
January	198	540,133	76	23
February	106	267,210	22	19
March	102	174,012	36	13
April	139	217,891	46	26
May	65	54,742	36	12
June	104	176,910	31	24
First half 1931	714	1,431,798	247	117
First half 1930	1,898	2,470,015	534	191
First half 1929	1,740	438,960	618	149
First half 1928	1,821	328,155	657	292
First half 1927	2,365	963,276	727	247
First half 1926	2,545	380,359	789	270
First half 1925	2,436	458,049	721	228

Important Sales

Several important transactions including the sale of oil property in different parts of the State were completed during the first six months of the year. The first sale of the year was in March in the Wewoka Townsite Pool, in Seminole County, where a half interest in 462 acres of leases was made by the Ramsey Petroleum Co. to the Mid-Kansas Oil & Gas Co. No consideration was announced but it was believed it was to be part cash and the balance in oil from the property. The acreage was located in the NW Section 30-8-8, on which four wells were producing with a potential of 37,880 bbls. a day from the Wilcox sand, and the balance of the acreage was located in Sections 19-8-8 and 24-8-8. The sale was made to the Mid-Kansas Oil & Gas Co., now the sole owner of the properties.

The next sale was in May when the interests of the Century Petroleum Co. were purchased by the Operators Royalty & Producing Co. in the Oklahoma City Field. No consideration was announced. The Operators Royalty & Producing Co. took over the operation of the properties which were in receivership and attempted to end the receivership which was effective with the Century Petroleum Co. The sale included all the interests in five producing wells in the Oklahoma City Field and two refineries, one located in Oklahoma City Field with a capacity of 2,000 bbls. a day and one in West Tulsa with a capacity of 1,000 bbls. a day.

Another sale announced in May was also in the Oklahoma City Field, Kessler & Co. purchased a one-fifth interest in all the properties of the Westgate Oil Co. in the Oklahoma City Field. The consideration was reported to be around $600,000. The valuation of the Westgate Oil Co.'s properties was estimated at $4,000,000, including leases, producing wells, drilling tests and other lease equipment. The property consisted of the Carey lease in N half SE, Section 34-12-3w, on the north edge of the field, on which one well was completed and two others were drilling. Other property included in the transaction were two completed wells and several drilling wells. No. 1 Wilson, No. 1 Kelsey and No. 1 Grace were located in Section 10-11-3w, and No. 2 Carey was drilling. The properties were all located in the Wilcox sand area of the pool. It was the second transaction between the two companies, the first being completed about a year ago, when the Kessler Oil & Gas Co. bought the half interest of F. C. Hall, in the Hall & Briscoe properties, and F. C. Hall formed the Westgate Oil Co.

Another sale was made in April in the Oklahoma City Field when H. H. Patton sold his interests in seven producing wells, the interest going to his partners. The partners acquiring the interests were Wilcox Oil & Gas Co., Anderson & Kerr Drilling Co., Charles Hubbard Drilling Co. and Dabney and Johnson. The interests included seven Wilcox sand producing wells with a potential of 100,000 bbls. of oil a day and two drilling tests.

Average Turned Back

Around the first of the year Mid-Continent oil companies started a program of reducing rentals and reducing their wildcat acreage. Practically every oil company had all its available lease men canvassing landowners seeking a reduction in rentals. Overhead expenses were being reduced by this method. It was estimated some of the companies had been paying $1,000,000 to $3,000,000 a

(Continued on Page 127)

OKLAHOMA (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
Ponca City—							
Daily average	526	476	458	508	496	503	
Month	16,306	13,328	14,198	15,240	15,376	15,090	89,538
Mervine—							
Daily average	254	227	307	223	231	219	
Month	7,874	6,356	9,517	6,690	7,161	6,570	44,168
Braman—							
Daily average	1,953	1,931	1,884	2,112	1,955	1,911	
Month	60,543	54,068	58,404	63,360	60,605	57,330	354,310
Hubbard—							
Daily average	990	929	945	974	986	926	
Month	30,690	26,012	29,295	29,220	30,566	27,780	173,563
Thomas—							
Daily average	595	577	602	584	556	547	
Month	18,445	16,156	18,662	17,520	17,236	16,410	104,429
Garrett—							
Daily average	5	5	13	35	31	29	
Month	155	140	403	1,050	961	870	3,579
Tonkawa—							
Daily average	4,897	5,290	6,132	5,732	5,482	5,260	
Month	151,807	148,120	190,092	171,960	169,942	157,800	989,721
Billings—							
Daily average	162	172	182	181	196	182	
Month	5,022	4,816	5,642	5,430	6,076	5,460	32,446
Perry and Miscellaneous—							
Daily average	1,194	1,237	1,554	1,444	1,304	1,279	
Month	37,014	34,636	48,174	43,320	40,424	38,370	241,938
GARFIELD COUNTY:							
Garber—							
Daily average	3,264	3,939	3,945	3,852	3,897	3,816	
Month	101,184	110,292	122,295	115,560	120,807	114,480	684,618
LOGAN COUNTY:							
Lovell—							
Daily average	668	612	577	559	561	552	
Month	20,708	17,136	17,887	16,770	17,391	16,560	106,452
Marshall—							
Daily average	3,450	3,345	3,045	3,065	3,150	3,093	
Month	106,950	93,660	94,395	91,950	97,650	92,790	577,395
CARTER COUNTY:							
Healdton—							
Daily average	10,354	10,631	10,557	10,012	11,459	11,262	
Month	320,974	297,668	327,267	300,360	355,229	337,860	1,939,358
Hewitt—							
Daily average	6,031	6,122	6,098	5,779	6,061	5,980	
Month	186,961	171,416	189,038	173,370	187,891	179,400	1,088,076
Graham—							
Daily average	2,183	2,319	2,349	2,362	2,218	2,232	
Month	67,673	64,932	72,819	70,860	68,758	66,960	412,002
Brock—							
Daily average	18	18	18	17	18	17	
Month	558	504	558	510	558	510	3,198
Fox—							
Daily average	1,712	1,765	1,825	1,804	1,849	1,836	
Month	53,072	49,420	56,575	54,120	57,319	55,080	325,586
Sholom Alechem—							
Daily average	12,711	12,839	13,205	13,482	13,989	13,813	
Month	394,041	359,492	409,355	404,460	433,659	414,390	2,415,397
STEPHENS AND COTTON COUNTIES:							
Loco-Milroy—							
Daily average	1,445	1,377	1,341	1,329	1,364	1,330	
Month	44,795	38,556	41,571	39,870	42,284	39,900	246,976
Comanche—							
Daily average	1,129	1,536	1,423	1,602	1,527	1,536	
Month	34,999	43,008	44,113	48,060	47,337	46,080	263,597
Duncan—							
Daily average	3,590	3,825	3,574	3,380	3,500	3,461	
Month	111,290	107,100	110,794	101,400	108,500	103,830	642,914
Walters—							
Daily average	2,173	2,282	2,177	2,043	2,686	2,593	
Month	67,363	63,896	67,487	61,290	83,266	77,790	421,092
Kilgore—							
Daily average	260	259	256	246	243	239	
Month	8,060	7,252	7,936	7,380	7,533	7,170	45,331
JEFFERSON COUNTY:							
Hambro, etc.—							
Daily average	1,973	2,044	2,277	2,201	2,245	2,210	
Month	61,163	57,232	70,587	66,030	69,595	66,300	390,907
6s-6w—							
Daily average	85	108	105	106	89	91	
Month	2,635	3,024	3,255	3,180	2,759	3,730	17,583
CADDO COUNTY:							
Cement—							
Daily average	4,362	4,044	3,788	3,730	3,620	3,575	
Month	135,222	113,232	117,428	111,900	112,220	107,250	697,252
GARVIN COUNTY:							
Robberson—							
Daily average	1,662	1,660	1,589	1,709	1,855	1,762	
Month	51,522	46,480	49,259	51,270	57,505	52,860	308,896
GRADY COUNTY:							
Knox—							
Daily average	1,854	1,958	2,087	2,089	2,292	2,114	
Month	57,474	54,824	64,697	62,670	71,052	63,420	374,137
BECKHAM COUNTY:							
Sayre—							
Daily average	36	36	34	29	29	30	
Month	1,116	1,008	1,054	870	899	900	5,847
MARSHALL COUNTY:							
Madill—							
Daily average	394	386	381	326	275	283	
Month	12,214	10,808	11,811	9,780	8,525	8,490	61,628
Daily average	479,063	483,285	536,377	559,255	559,157	555,940	529,496
Total first six months 1931	14,850,953	13,531,980	16,627,687	16,815,990	17,333,867	16,678,200	95,838,677
Total first six months 1930	20,802,984	17,977,624	19,115,406	19,541,310	20,587,503	19,754,700	117,779,527
Total first six months 1929	22,575,874	20,464,164	20,838,262	20,235,390	21,345,453	20,561,112	126,020,255
Total first six months 1928	20,978,320	19,294,426	20,162,524	19,096,920	19,443,355	18,482,981	117,458,526
Total first six months 1927	19,035,426	19,752,348	22,480,921	22,208,130	23,258,463	22,830,330	129,565,618
Total first six months 1926	13,674,813	12,392,016	14,312,886	14,468,190	14,507,008	14,073,510	83,428,423

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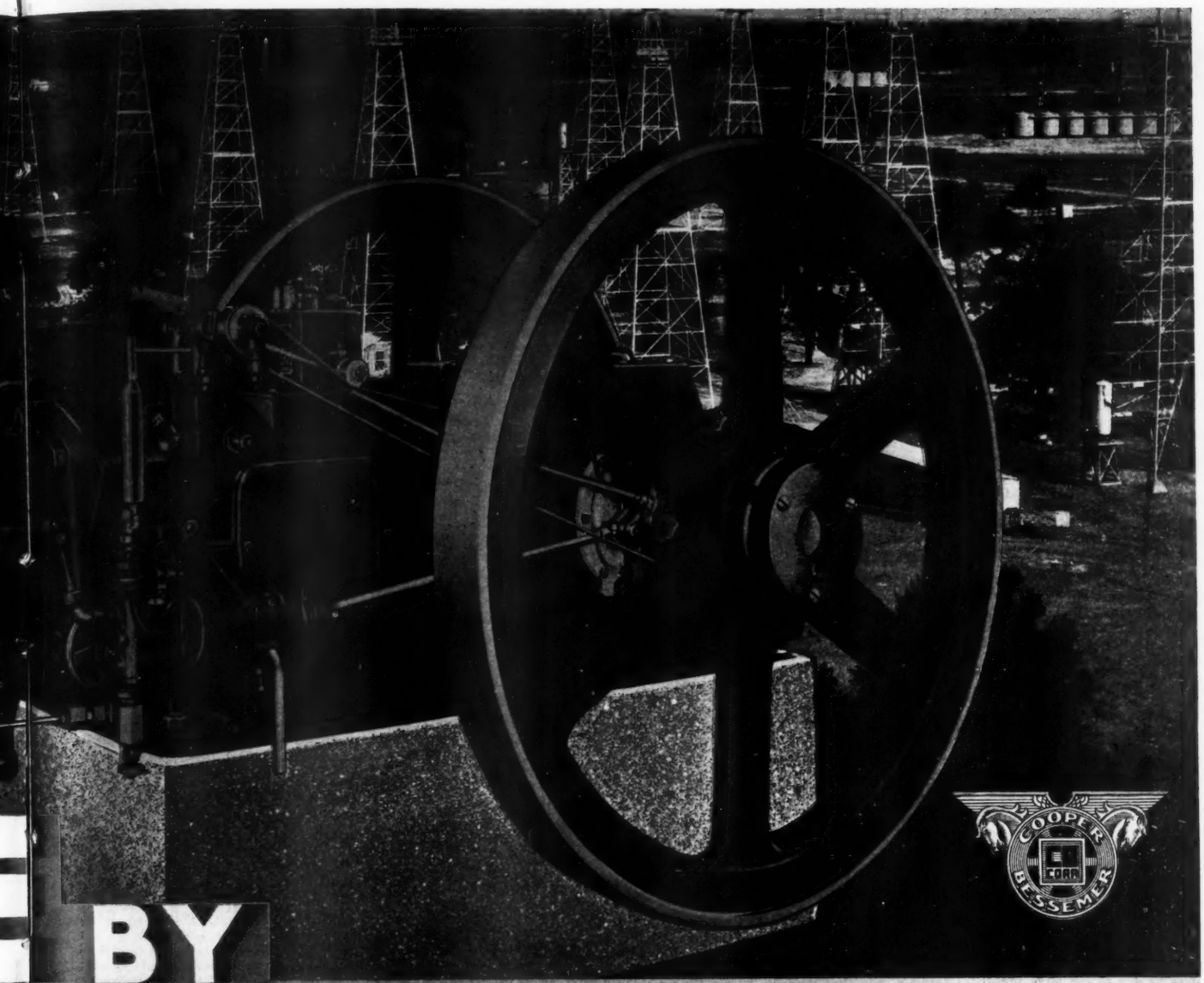

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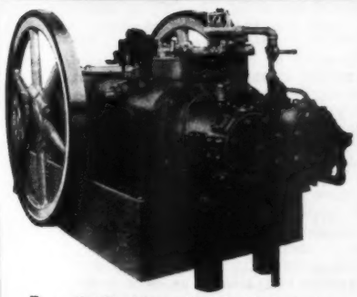

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Important Discoveries Made in Kansas

The Development of Ritz-Canton Area and New Pools on the Ellsworth Arch Promise Big Things for Future

By W. A. Spinney
Staff Correspondent, Kansas Fields

The development of the oil and gas reservoirs in Kansas during the first six months of 1931 was orderly and steady. The important events during the same time were the passage of the state-wide proration law giving the Public Service Commission the power to regulate the production of oil and gas in the state. The law became effective May 28, 1931.

The Ritz-Canton and Decker gas areas in McPherson County were the most active during the first half of the year. At the opening of the year the Voshell Pool, in McPherson County, was apparently defined and the development work and the daily production declined. When the Voshell Pool declined the Ritz-Canton and Decker Pools became active. The discovery of the deep sand production in the Ritz-Canton Pool in March, 1931, resulted in an increase in operations. The deep pay horizon giving the area added importance. The pool was producing from two pay horizons, chat and Viola limestone.

The finding of oil in several wildcat wells along the Ellsworth Arch in the central western part of the state in Ellsworth, Rice and Stafford Counties indicates that a large producing area may be opened and developed when conditions return to normal. The wells that found oil are shut in and have never been produced owing to the lack of a pipe line outlet. Many express the opinion the area is one of considerable possibilities from a production standpoint. A proposed pipe line was being considered in June and negotiations were under way at the close of the half year.

A survey of the new wells in the state in the first half of the year indicate that only 256 wells were completed, the smallest number of completions in a like period in several years. However, the initial production was about the Kansas average, with the total at 75,488 bbls. a day. In the first six months of 1930, 514 wells were completed with an initial production of 100,380 bbls. a day. The wells completed in 1931 averaged larger per well than those completed in 1930. This is believed to be due to the large initial production of the wells in the Ritz-Canton Pool, in McPherson County.

New Proration Law

One of the important events of the first six months in Kansas was the new proration law which was signed by Governor Woodring, placing the administration of the curtailment act in the hands of the Public Service Commission. The law become effective May 28.

In January a general meeting of operators was held in Wichita to consider a state-wide proration plan. At the beginning of the meeting T. C. Johnson, Kansas proration umpire, resigned. The proration umpire is believed to have taken this action because of the situation in the Eastborough Pool, in Sedgwick County, which was one of the flush pools in the state at that time without any curtailment. T. C. Johnson served as state umpire for the past two years.

Only one flush pool in the state, Voshell, was under proration and it was voluntary, the outlet being limited to the pipe line capacity. The first part of February Stanolind Oil & Gas Co. proposed a unit plan of producing the wells in the Ritz-Canton Pool, and it was unanimously adopted, and was used during the balance of the first six months of the year. The plan divided the field into 40-acre units for the purpose of allocating production. If more than one well was drilled on 40 acres, the potential production for the unit was left unchanged, just as though there was but one well. The unit potentials were allocated according to the pipe line outlet.

The last part of May the members of the Public Service Commission and a committee of oil operators met in Topeka and named a committee to act in an advisory capacity in the administration of the new proration law. The members appointed were Marvin Lee, Wichita, consulting geologist; Ralph Pryor, Wichita, with Slick, Pryor and Lockhart, producers; Lee Scott, Wichita, with Vickers Petroleum Co.; Rex Kent, Salina, Kent Oil Co., and Nelson K. Moody, Independence, president of Prairie Oil & Gas Co. Later a conference was held between the advisory committee and the Public Service Commission and it was agreed that the commission would not issue orders that would disturb the oil industry but would lend a helping hand when the state's advisory committee was unable to reach an agreement. The oil men of the state were permitted to work out their own problems if possible. The committee did not make any changes in the proration program. Should there be any complaints the committee will take its recommendations to the Public Service Commission for final action.

Developing Ritz-Canton

With the decline of the development work in the Voshell Pool, another area in the same county stepped into the limelight, the Ritz-Canton Pool, which soon developed the largest potential production

KANSAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
SEDGWICK COUNTY:							
Wright—							
Daily average	8,085	8,205	7,684	7,051	6,782	6,598	
Month	250,635	229,740	238,204	211,530	210,242	197,790	1,338,141
Greenwich—							
Daily average	2,371	3,662	3,620	3,233	3,030	2,988	
Month	73,501	102,536	112,220	96,990	93,930	89,640	568,817
Robbins—							
Daily average	278	339	306	270	274	276	
Month	8,618	9,492	9,486	8,100	8,494	8,280	52,470
Eastborough—							
Daily average	7,904	8,020	7,163	6,349	5,472	5,460	
Month	245,024	224,560	222,052	190,470	169,632	163,800	1,215,539
Miscellaneous—							
Daily average	310	282	291	325	272	262	
Month	9,610	7,896	9,021	9,750	8,432	7,860	52,569
MARION COUNTY:							
Florence-Urschel—							
Daily average	240	246	217	224	218	219	
Month	7,440	6,888	6,727	6,720	6,758	6,570	41,103
Peabody—							
Daily average	228	241	477	635	544	511	
Month	7,068	6,748	14,787	19,050	16,864	15,330	79,847
Covert-Sellers—							
Daily average	421	411	593	604	572	601	
Month	13,051	11,508	18,383	18,120	17,732	18,030	96,824
Lost Springs—							
Daily average	996	910	829	782	741	753	
Month	30,876	25,480	25,699	23,460	22,971	22,590	151,076
Davis—							
Daily average	567	702	639	629	652	626	
Month	17,577	19,656	19,809	18,870	20,212	18,780	114,904
BUTLER COUNTY:							
Elbing—							
Daily average	1,462	1,260	1,494	1,762	1,768	1,688	
Month	45,322	35,280	46,314	52,860	54,808	50,640	285,224
Potwin—							
Daily average	360	277	341	375	338	333	
Month	11,160	7,756	10,571	11,250	10,478	9,990	61,205
South Augusta—							
Daily average	982	915	1,015	946	887	890	
Month	30,442	25,620	31,465	28,380	27,497	26,700	170,104
North Augusta—							
Daily average	1,354	1,269	1,243	1,210	1,136	1,142	
Month	41,974	35,532	38,533	36,300	35,216	34,260	221,815
Towanda—							
Daily average	1,727	1,597	1,631	1,762	1,705	1,667	
Month	53,537	44,716	50,561	52,860	52,855	50,010	304,539
Cameron-Robinson—							
Daily average	663	967	785	766	696	703	
Month	20,553	27,076	24,335	22,980	21,576	21,090	137,610
Sluss—							
Daily average	194	190	191	199	200	192	
Month	6,014	5,320	5,921	5,970	6,200	5,760	35,185
Nuttle-Koogler—							
Daily average	2,713	2,516	2,650	2,638	2,735	2,656	
Month	84,103	70,448	82,150	79,140	84,785	79,680	480,306
Wilson-Dunkle—							
Daily average	1,463	1,345	1,440	1,378	1,405	1,383	
Month	45,353	37,660	44,640	41,340	42,555	41,490	254,038
Eldorado—							
Daily average	6,442	6,092	6,296	6,097	6,105	6,111	
Month	199,702	170,576	195,176	182,910	189,255	183,330	1,120,949
Smock—							
Daily average	204	180	176	175	182	178	
Month	6,324	5,040	5,456	5,250	5,673	5,340	33,083
Leon-Weaver—							
Daily average	3,760	3,342	3,287	3,377	3,180	3,169	
Month	116,560	93,576	101,897	101,310	98,580	95,070	606,993
Fox-Bush—							
Daily average	827	861	771	782	733	712	
Month	25,637	24,108	23,901	23,460	22,723	21,360	141,189
Douglass—							
Daily average	97	97	97	95	96	93	
Month	3,007	2,716	3,007	2,850	2,976	2,790	17,346
Keighly—							
Daily average	407	444	410	424	392	388	
Month	12,617	12,432	12,710	12,720	12,152	11,640	74,271
Benton—							
Daily average	63	60	71	65	61	62	
Month	1,953	1,680	2,201	1,950	1,891	1,860	11,535
Blankenship—							
Daily average	466	544	441	516	451	471	
Month	14,446	15,232	13,671	15,480	13,981	14,130	86,940
GREENWOOD AND WOODSON COUNTIES:							
Sallyards—							
Daily average	732	750	970	960	936	911	
Month	22,382	21,000	30,070	28,800	29,016	27,330	158,598
Teeter—							
Daily average	3,279	3,349	3,366	3,322	3,311	3,286	
Month	101,649	93,772	104,346	99,660	102,641	98,580	600,648
Virgil—							
Daily average	4,488	4,749	4,552	4,297	4,342	4,320	
Month	139,128	132,972	141,112	128,910	134,602	129,600	806,324
Thrall-Burkett—							
Daily average	974	1,040	937	991	996	981	
Month	30,194	29,120	29,047	29,730	30,876	29,430	178,397
Seeley—							
Daily average	6,104	5,748	5,322	5,246	4,973	4,866	
Month	189,224	160,944	164,982	157,380	154,163	145,950	975,643

(Table Continued on Next Page)

of any pool in the state. In January the potential production of the Ritz-Canton Pool was 35,578 bbls. a day from 23 wells. According to the state umpire report the total potential production of the Voshell Pool and the Ritz-Canton Pool was increased to 105,217 bbls. a day, which was equal to the entire state's actual daily production. The potential production from the Ritz-Canton Pool steadily increased during the first six months of the year until it exceeded the state's actual producing on June 30 from 65 completed wells.

The activity started the last part of January and continued at a steady pace every month of the first of the year. The development of the two producing formations, the chat and the Viola, kept operators busy. If a test missed the chat formation it was drilled to the deeper pay which was the Viola formation.

Another area that developed into an important gas-producing district was the Decker gas field, which adjoined the Ritz-Canton Pool, it being located only a few miles to the northwest. The first of the year it had a potential of 250,000,000 feet of gas per day from 14 completed gas wells, which was increased to 650,000,000 feet a day June 30 from 40 completed gas wells. Wells completed in the area ranged from 1,000,000 feet a day to 55,000,000 feet.

At the time the Ritz-Canton Pool, was first discovered none realized the size the field would reach. The discovery well was drilled by the Shell Petroleum Corp. on the Ritz farm in Section 1-20-2w. It blew in June 30, 1929, with a large flow of oil and gas from the chat. The discovery well was estimated at 5,000 bbls. a day and there were no facilities at hand to handle the unexpected flow of oil.

The development of the area has been orderly and slow, gradually spreading to the north and northeast until it now extends in some cases 8 miles wide and 10 miles long. The producing area has spread over such a large territory the field was called the Ritz-Canton area.

The deep formation, or Viola lime, was discovered 2 miles north of the first well which found its production in the chat. At the end of June the possibilities of both the chat and the Viola lime formations are as yet unknown, as neither has been defined.

Only One Dry Hole

The only dry hole as yet completed in the Ritz-Canton area in the deep sand was Prairie Oil & Gas Co. and Gypsy Oil Co.'s No. 1 Way, SE cor. Section 18-19-1w, and it indicates the northern edge of the producing area. Water was found in the Viola lime at 3,443-60 feet.

Another semiwildcat test was drilled about 3 miles east of production by Darby Petroleum Corp. and others' No. 1 Summe Field, in Section 23-19-1w, which was abandoned at a total depth of 3,539 feet as a dry hole.

State's Largest Well

The largest well completed in the state the first six months of the year was in the Ritz-Canton Field. It was G. P. Dickey and Shell Petroleum Corp.'s No. 1 Decker, SE cor. Section 35-19-2w, on the west side of the area. The well flowed 3,316 bbls. of oil in 12 hours and it was given a potential of 6,632 bbls. a day.

The Ellsworth Arch

Along the Ellsworth arch on which oil has been found in northeastern Stafford County, western Rice County and southwestern Ellsworth County and which runs in a southwest-northeast direction through these counties and makes a northwesternly turn, making a cross trend through Russell County, in a southeast-northwest direction, has 11 different oil producing pools of which 7 are without any pipe line connection at the close of the first six months. It is believed Ellsworth arch will produce here and there over an area of 200 miles in the above counties.

The first week in April a wildcat test in Ellsworth County found oil in the Silicious lime. The well was shut in but many believed it had opened a new producing area. The test was A. Ayward, R. Tack and W. H. Allshouse's No. 1 Stratman, SE cor. NW SE, Section 1-17-10w, in the southwestern part of the county. The oil rose 2,700 feet in the hole in three hours from the Silicious lime at 3,255-60 feet, and later it was slopping over the top of the hole. The well was shut in until tankage was erected. The well was rated at 1,000 bbls. a day. It was shut in awaiting a pipe line connection.

Wildcat Showings in Russell

Two wildcat tests found oil in Russell County, indicating the future possibilities for drilling when conditions return to normal. The first was Agate Oil & Gas Co.'s No. 1 Rockefeller, SE cor., Section 6-13-12w. The showing was found at 3,238 feet with some water. The operators did not believe the oil showing was of commercial value and drilled the test deeper to a total depth of 3,374 feet.

In May a new producing area was found in the southern part of Russell County by a wildcat test finding oil in the Oswald lime. J. J. Hall and Stearns-Streeter Co.'s No. 1 Miller, SW cor. SE SE, Section 30-14-13w, swabbed 4 bbls. of oil an hour from the pay at 2,890-2,906 feet. The operators later drilled the well deeper to a total depth of 3,012 feet and plugged it back to the Oswald and completed it for 8 bbls. of oil and one bailer of water an hour.

Sedgwick County which was active during 1930 was quiet with the exception of the Eastborough Pool, near Wichita.

(Continued on Page 181)

KANSAS (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
Polhamus—							
Daily average	612	705	657	695	645	647	
Month	18,972	19,740	20,367	20,850	19,995	19,410	119,334
Miscellaneous—							
Daily average	887	902	889	835	797	782	
Month	27,497	25,256	27,559	25,050	24,707	23,460	153,529
COWLEY COUNTY:							
Rainbow Bend—							
Daily average	1,544	1,512	1,520	1,535	1,467	1,411	
Month	47,864	42,336	47,120	46,050	45,477	42,330	271,177
Slick—							
Daily average	391	404	404	412	402	404	
Month	12,121	11,312	12,524	12,360	12,462	12,120	72,899
Graham—							
Daily average	273	275	256	254	235	227	
Month	8,463	7,700	7,936	7,620	7,285	6,810	45,814
Rock—							
Daily average	126	122	130	138	128	126	
Month	3,906	3,444	4,030	4,140	3,968	3,780	23,268
Clark—							
Daily average	161	157	97	162	155	149	
Month	4,991	4,396	3,007	4,860	4,805	4,470	26,529
Eastman—							
Daily average	322	352	310	359	348	334	
Month	9,982	9,856	9,610	10,770	10,788	10,020	61,026
Winfield-New Salem—							
Daily average	1,704	1,757	1,898	1,873	1,828	1,810	
Month	52,824	49,196	58,838	56,190	56,668	54,300	328,016
Miscellaneous—							
Daily average	809	811	820	866	835	827	
Month	25,079	22,708	25,420	25,980	25,885	24,810	149,882
McPHERSON COUNTY:							
Ritz-Canton—							
Daily average	5,951	6,517	6,142	6,386	5,657	5,772	
Month	184,481	182,476	190,402	191,580	175,367	173,160	1,097,466
Voshell—							
Daily average	16,853	21,611	18,439	16,650	17,832	16,770	
Month	522,443	605,108	571,609	499,500	552,792	503,100	3,254,552
Miscellaneous—							
Daily average	426	149	142	183	156	149	
Month	13,206	4,172	4,402	5,490	4,836	4,470	36,576
OTHER COUNTIES:							
Trego—							
Daily average	4	4	3	3	.....	.....	
Month	124	112	93	90	.....	.....	419
Rooks—							
Daily average	300	307	180	173	181	177	
Month	9,300	8,596	5,580	5,190	5,611	5,310	39,587
Sumner—							
Daily average	8,009	8,745	7,249	7,304	7,224	7,202	
Month	248,279	219,660	224,719	219,120	223,944	216,060	1,351,782
Rice—							
Daily average	662	638	678	625	1,132	950	
Month	20,522	17,864	21,018	18,750	35,092	28,500	141,746
Russell—							
Daily average	3,186	2,964	3,155	3,104	3,174	3,183	
Month	98,766	82,992	97,805	93,120	98,394	95,490	566,567
Reno—							
Daily average	34	30	21	160	218	210	
Month	1,054	840	651	4,800	6,758	6,300	20,403
Harvey—							
Daily average	60	268	226	96	95	92	
Month	1,860	7,504	7,006	2,880	2,945	2,760	24,955
Chautauqua—							
Daily average	1,476	2,461	1,965	1,904	1,922	1,911	
Month	45,756	68,908	60,915	57,120	59,582	57,330	349,611
Elk—							
Daily average	1,310	2,862	2,124	2,035	2,010	2,013	
Month	40,610	80,136	65,844	61,050	62,310	60,390	370,340
Wilson—							
Daily average	123	164	168	169	163	161	
Month	3,813	4,592	5,208	5,070	5,053	4,830	28,566
Montgomery—							
Daily average	618	696	773	754	762	756	
Month	19,158	19,488	23,963	22,620	23,622	22,680	131,531
Edwards—							
Daily average	107	109	94	94	106	95	
Month	3,317	3,052	2,914	2,820	3,286	2,850	18,239
Ellis—							
Daily average	247	219	349	364	363	352	
Month	7,657	6,132	10,819	10,920	11,253	10,560	57,341
Allen—							
Daily average	416	493	499	478	471	466	
Month	12,896	13,804	15,469	14,340	14,601	13,980	85,090
Neosho—							
Daily average	470	503	511	482	491	473	
Month	14,570	14,084	15,841	14,460	15,221	14,190	88,366
Lyon—							
Daily average	479	581	603	525	533	527	
Month	14,849	16,268	18,693	15,750	16,523	15,810	97,833
Miami—							
Daily average	862	1,014	1,026	1,060	1,011	1,013	
Month	26,722	28,392	31,806	31,800	31,341	30,390	180,451
Franklin—							
Daily average	260	289	288	284	279	266	
Month	8,060	8,092	8,928	8,520	8,649	7,980	50,229
Douglass—							
Daily average	11	13	14	14	14	13	
Month	341	364	434	420	434	390	2,383
Bourbon—							
Daily average	37	44	46	39	41	40	
Month	1,147	1,232	1,426	1,170	1,271	1,200	7,446
Linn—							
Daily average	127	167	173	155	162	157	
Month	3,937	4,676	5,363	4,650	5,022	4,710	28,358
Anderson—							
Daily average	1,313	1,307	1,402	1,469	1,447	1,442	
Month	40,703	36,596	43,462	44,070	44,857	43,260	252,948
Labette—							
Daily average	16	17	16	16	15	15	
Month	496	476	496	480	465	450	2,863
Woodson—							
Daily average	388	442	286	256	301	336	
Month	12,028	12,376	8,866	7,680	9,331	10,080	60,361
Daily average	110,725	119,322	112,858	109,396	107,786	105,848	110,888
Total first six months 1931	3,432,475	3,341,016	3,498,598	3,281,880	3,341,366	3,175,440	20,070,775
Total first six months 1930	3,273,197	2,965,704	3,504,395	3,734,253	3,987,385	3,765,060	21,220,994
Total first six months 1929	2,861,641	2,557,968	2,951,076	3,112,740	3,665,099	3,636,150	18,784,674
Total first six months 1928	3,319,325	3,079,887	3,379,031	3,412,360	3,367,809	3,202,050	19,760,462
Total first six months 1927	3,769,879	3,352,076	3,675,143	3,516,930	3,704,314	3,437,580	21,455,922
Total first six months 1926	3,250,536	2,877,813	3,334,887	3,330,120	3,516,640	3,366,450	19,676,445

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Four New Fields Opened on Gulf Coast

Three in Texas and One in Louisiana and They Have Good Prospects of Becoming Important Areas

By Nell Williams
Staff Correspondent, Gulf Coast Fields

The generally restricted development on the Gulf Coast which was successful in effecting substantial reductions in production for the first six months of 1931, failed to prevent a fairly fruitful half year for field work. Drilling operations declined gradually to the lowest level in years, nevertheless the period was marked by the opening of additional reserves of coastal oil and important extensions of others.

Out of this drilling curtailment, four entirely new fields of commercial importance were opened on the coast during the six months. Indicative production was found on at least four other prospects. Each of these was a geophysically discovered salt dome prospect, and being controlled, as most new coastal areas are, by large, single companies or on a joint ownership basis, their opening for production followed systematic, conservative exploration programs, and will not result in any competitive drilling play, such as usually follows new discoveries in other areas of the country. They, however, do represent new potential production in the event they are needed by their respective owners.

Four New Fields

The four new fields included in the order of their discoveries are: Leesville, LaFourche Parish, Louisiana; Lockwood (Clear Lake), Fort Bend County, Texas; Lake Grand Ecaille, Plaquemines Parish, Louisiana, and Bayou Choctaw, Iberville Parish, Louisiana. The latter three were opened within a period of three weeks of each other. Geophysically discovered prospects, two of them, Lake Grand Ecaille and Bayou Choctaw, have been definitely proved as salt domes by the finding of cap rock and salt. With the exception of Lockwood only one producer has been completed on each but no additional tests have been drilled on the others.

Leesville was opened for production during February by The Texas Company's No. 2 L.L.& E., which first was completed in a sand at a total depth of 3,028 feet with 42 feet 10 inches of 4¾-inch screen in the hole. The well came in flowing 400 to 500 bbls. daily but this failed to hold up and the hole was deepened, finding a second sand at 3,598-3,628 feet, which flowed initially 56 bbls. of pipe line oil hourly through a half-inch choke. Gravity of the oil was 24.9°.

The discovery well was the second test drilled by The Texas Company, the exclusive developer of the prospect under a working arrangement with the Louisiana Land & Exploration Co., which discovered the prospect in 1928. The first test, No. 1 L.L.&E., was drilled to a total depth of 5,448 feet where it was abandoned with a junked hole. The prospect, believed to be a deeply seated salt dome, is in the marsh district along the Gulf of Mexico in the extreme lower part of LaFourche Parish. The two tests are approximately a mile apart, the first being in Section 27 and the other in Section 26-21s-22e. The discovery well has been producing steadily since its completion in the second sand in April.

At Lockwood, sometimes known as Clear Lake or Thompson, Cullen & West and Gulf Production Co. jointly completed No. 1 Lockwood & Sharp on May 21, flowing 300 to 400 bbls. of pipe line oil daily on a quarter-inch choke from sand at 3,087 feet. A 30-foot joint of screen was set in the sand. When it first came in it was on a larger choke and for a short time was estimated to have flowed at the rate of 2,000 bbls. daily. Due to lack of storage and no line connections, the well was shut in to around 3 bbls. an hour on an eighth-inch choke but following the laying of a 6-inch line by the Gulf Pipe Line Co. to its main line, only a distance of 5½ miles, the well was opened on a half-inch choke for 60 bbls. an hour and later on an inch choke flowed 100 bbls. of clean oil hourly.

Since completion of this wildcat, a second well has been brought in extending the field 2,500 feet to the southwest. It was the same operators' No. 1-A Lockwood, flowing initially 85 bbls. hourly on a half-inch choke from a total depth of 3,476 feet with 30 feet of screen. The distance separating the two wells would account for the difference in depths. Both wells are in the John Rabb Survey in the extreme eastern part of the county and about 8 or 9 miles south of Humble Oil & Refining Co.'s Sugarland Field. Cullen & West and Gulf Production Co., which pooled their holdings for the development of the field, are believed to hold all the favorable acreage although around the edges of the supposed dome the acreage is pretty well cut up among nearly all the larger companies. One rig is being kept running on the prospect and a third test, an offset to the second producer, is drilling.

Close on the opening of Lockwood came Lake Grand Ecaille, the most easterly of coastal fields, located in the extreme southeastern part of Louisiana in the marshes of southern Plaquemines Parish. The discovery well, the fifth test drilled on the dome, was completed June 18 flowing an estimated 500 bbls. in the first nine hours through a three-quarter-inch choke from cap rock at a total depth of only 1,158 feet. This test, No. 4 Cockrell-Moran, was drilled by Humble Oil & Refining Co. but is owned jointly by Humble, Gulf Refining Co. and Shell Petroleum Corp. Cap rock was topped at 1,074 feet but 9⅝-inch casing was run into it to 1,141 feet.

GULF COAST—TEXAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
ALLEN:							
Daily average	162	74	27	20	8	16	
Month	5,018	2,072	830	596	239	466	9,221
BARBERS HILL:							
Daily average	22,128	21,510	19,688	27,950	27,677	23,493	
Month	685,956	602,280	610,326	811,504	857,996	704,793	4,272,855
BATSON:							
Daily average	1,076	976	962	962	932	953	
Month	33,372	27,328	29,821	28,862	28,885	28,580	176,848
BIG CREEK:							
Daily average	3,517	2,751	2,940	3,200	2,850	2,598	
Month	109,025	77,028	91,144	95,998	88,353	77,934	539,483
BLUE RIDGE:							
Daily average	1,441	1,301	1,141	1,155	1,203	1,134	
Month	44,674	36,428	35,372	34,650	37,297	34,019	222,440
BRENHAM:							
Daily average	143	140	51	54	62	86	
Month	4,420	3,920	1,573	1,625	1,922	2,587	16,047
BOLING:							
Daily average	946	528	694	762	699	928	
Month	29,320	14,784	21,519	22,861	21,654	27,847	137,985
CLAY CREEK:							
Daily average	1,778	2,124	2,234	2,259	2,406	1,476	
Month	55,132	59,472	69,255	67,764	74,591	44,277	370,491
DAMON MOUND:							
Daily average	593	611	585	538	1,198	1,113	
Month	18,395	17,108	18,140	16,148	37,143	33,381	140,315
DE WALT:							
Daily average	11,931	12,037	11,785	11,708	11,425	11,152	
Month	369,865	337,036	365,335	351,241	354,177	334,555	2,112,209
ESPERSON:							
Daily average	2,846	1,945	2,441	2,185	1,980	1,829	
Month	88,239	54,460	75,674	65,547	61,382	54,865	400,168
FANNETT:							
Daily average	612	689	472	450	470	478	
Month	18,968	19,292	14,632	13,495	14,570	14,325	95,282
GOOSE CREEK:							
Daily average	4,467	3,122	4,620	4,362	4,846	4,423	
Month	138,471	87,416	143,220	130,859	150,212	132,673	782,856
HANKAMER:							
Daily average	2,305	2,371	2,401	2,494	2,502	2,125	
Month	71,442	66,388	74,436	74,826	77,570	63,757	428,419
HIGH ISLAND:							
Daily average	995	287	488	390	395	357	
Month	30,840	8,036	15,128	11,701	12,255	10,717	88,677
HULL:							
Daily average	7,086	6,380	6,268	6,543	6,695	6,156	
Month	219,666	178,640	194,308	196,283	207,543	184,694	1,181,134
HUMBLE:							
Daily average	10,757	9,026	9,435	10,675	9,151	9,296	
Month	333,481	252,728	292,491	320,254	283,679	278,886	1,761,519
LOCKWOOD:							
Daily average	.....	.....	.....	.....	55	1,303	
Month	.....	.....	.....	.....	1,717	39,081	40,798
LOST LAKE:							
Daily average	431	341	292	279	255	240	
Month	13,362	9,548	9,053	8,366	7,893	7,211	55,433
MARKHAM:							
Daily average	210	169	170	194	192	173	
Month	6,502	4,732	5,274	5,822	5,954	5,196	33,480
MOSS BLUFF:							
Daily average	336	414	482	533	338	313	
Month	10,427	11,592	14,933	15,993	10,488	9,399	72,832
MYKAWA:							
Daily average	221	121	359	219	169	149	
Month	6,842	3,388	11,119	6,565	5,239	4,471	37,624
NASH:							
Daily average	268	278	239	239	186	200	
Month	8,306	7,784	7,417	7,171	5,761	5,997	42,436
NORTH DAYTON:							
Daily average	1,014	561	628	629	465	639	
Month	31,438	15,708	19,468	18,876	14,408	19,181	119,079
ORANGE:							
Daily average	2,174	1,630	1,801	1,907	1,833	1,716	
Month	67,381	45,640	55,834	57,203	56,825	51,487	334,370
ORCHARD:							
Daily average	2,462	2,122	1,775	1,711	907	1,108	
Month	76,339	59,416	55,030	51,336	28,120	33,241	303,482
PIERCE JUNCTION:							
Daily average	9,370	8,203	8,459	8,586	9,056	8,882	
Month	290,457	229,684	262,217	257,574	280,731	266,462	1,587,125
PORT NECHES:							
Daily average	1,607	1,688	1,499	1,483	1,398	1,317	
Month	49,818	47,264	46,469	44,464	43,338	39,497	270,850
RACCOON BEND:							
Daily average	8,632	8,953	9,226	8,601	8,017	7,548	
Month	267,617	250,684	286,005	258,031	248,529	226,447	1,537,313
REFUGIO:							
Daily average	29,605	33,213	30,817	31,831	28,719	28,470	
Month	917,742	929,964	955,327	954,926	890,299	854,111	5,502,369
ROCKLAND:							
Daily average	7	4	8	8	2	1	
Month	223	112	246	239	66	30	916

(Continued on Next Page)

The well was pinched to an eighth-inch choke flowing 10 bbls. hourly. Gravity of the oil is 19.1° of the same quality as the original coastal lub stock oil.

First Cap Rock Pool Since 1926

Lake Grand Ecaille is the only one of the new fields opened this year which is producing from the cap rock. Such pools which include in their number Spindletop, Humble, Sour Lake and Batson, have been among the most prolific producers on the Gulf Coast. Other tests at Lake Grand Ecaille had drilled into cap rock and salt and thus the dome previously had been proved. The present well is about 4,500 feet to the east of those, indicating a fairly large dome. Two of the other tests were cap rock tests while two were deep flank sand tests, one of which encountered a sand showing oil at 5,144-52 feet but in this failed to make a well. The dome is in Township 20s-26e. A sixth test is under way.

Quickly following Lake Grand Ecaille was the proving up of Bayou Choctaw, Iberville Parish, by the Standard Oil Co. of Louisiana, whose No. 1 Gay, an interest which is held by the Gulf Refining Co., came in June 22 flowing an estimated 3,000 bbls. of 29.6 gravity pipe line oil through a three-eighths-inch choke. The well, however, soon was pinched to a one-thirty-second-inch choke, making 50 bbls. daily but on July 1 was flowing 530 bbls. through a three-thirty-seconds-inch choke. Location of the well is Section 52-9s-11e.

This was the first test drilled at Bayou Choctaw. A series of shallow tests previously had been drilled by Texas Gulf Sulphur Co. in exploration for sulphur. In those tests cap rock and salt were encountered, proving the findings of geophysical instruments. This dome is even shallower than Lake Grand Ecaille, cap rock being topped from 550 to 700 feet. Standard Oil Co. already has started on its second deep test, No. 1 Myrtle Grove-Wilbert, 250 feet west of the discovery well.

A fifth new field was opened early in the year but the discovery well flowed only a short time and as yet cannot be classed as a commercial producer. That was at Iowa, a geophysical prospect located on the Calcasieu-Jefferson Davis Parish line. The well itself is on the Calcasieu Parish side of the line in the SE cor., Section 12-9s-7w. It was completed January 29 flowing at the rate of 600 bbls. daily on a three-hour gauge through a half-inch choke from sand 5,001-08 feet. Then placed on a three-eighths-inch choke flowing 250 bbls. daily with an estimated 4,000,000 feet of gas. A short time later after showing considerable salt water the well was shut in pending erection of storage and a small treating plant. When opened several weeks after it showed only salt water and then was deepened finding a second sand showing oil at 6,961-79 feet, in which it has been trying to set screen for a test. Gravity of the oil recovered was 29.9° (corrected).

The discovery well was the first test drilled on the prospect, which was checked by seismograph in 1929. Shell Petroleum Corp. is credited with finding the dome prospect and before the drilling of the Vacuum test made a location for a wildcat (No. 1 Heyd), located just over the line in Jefferson Davis Parish in Section 13-9s-7w. After materials were moved in the location was abandoned.

Indications of Other Fields

Indications of other fields also were given at Cameron Meadows, Cameron Parish, Louisiana; Rose Dome (Spanish Pass), Plaquemines Parish, Louisiana, and Manvel, Brazoria County, Texas. At Cameron Meadows, Vacuum Oil Co. got a small but noncommercial well in its No. 1 Cameron Meadows, Section 21-14s-13w, which made approximately 400,000 feet of gas with 100 bbls. of fluid, 2 per cent oil, from a sand at 3,850 feet, having one joint of screen. This test, the first on the prospect, also encountered numerous other sands showing oil, several of which have made small pumpers, but the hole was deepened to 5,240 feet after several sidetracking jobs. There the hole was in a good looking sand but with the drill stem again stuck in the hole was sidetracked to the 3,850-foot sand and completed. That was in January and since then a second test, 500 feet south, has been drilled down to 4,312 feet where, at this writing, drill stem is stuck.

Gulf Refining Co. experienced gas blowouts in two wildcats drilled on the Rose Dome, Plaquemines Parish, in the extreme southeastern tip of Louisiana. The first, No. 1 Buras Levee Board, Section 27-21s-30e, blew out in a sand at a total depth of 244 feet late in 1930. This hole cratered and was abandoned with the rig lost. The second test then was located 200 feet distant. While drilling at 835 feet in a second sand late in December it also blew out but the hole was saved and the well killed. Early this year it was deepened, encountering cap rock at 2,216 feet and thus proving the actual existence of the dome. The test was drilled in cap rock to 2,356 feet and abandoned after a test was made in the cap rock at 2,216-36 feet. In that test it flowed an estimated 2,000 bbls. daily of sulphur water. Due to the drilling curtailment program of the Gulf companies there has been no drilling on that dome since. The dome was discovered by seismograph in 1928.

On the Manvel prospect in northern Brazoria County, Texas, The Texas Company found a pretty good indication of another new field when its No. 1 O. F. Ewing, Harvey N. Little Survey, blew in from a sand at a total depth of 7,590 feet making an estimated 50,000,000 feet of dry gas through a half-inch choke. At first the well had a pressure estimated at around 1,500 pounds but after a few hours this dropped to below 100 pounds and the volume correspondingly fell off to virtually nothing. The hole then was deepened to 7,648 feet and was abandoned in heaving shale. Manvel is a torsion balance prospect discovered in 1929 by Alexander and Smith and turned to The Texas Company. The Ewing test was the first on the prospect. A second, located approximately a half mile to the southeast, now is drilling.

Important Extensions

Important extensions of production and extension development were made at Barbers Hill, Pierce Junction, Lockport, and at Refugio and in the Bloomington district of southern Victoria County in the lower coastal district. Barbers Hill figured most conspicuously in field reports due to a "line fight" which got under way in full force on the west flank during the first few months of the year. Production had been opened on that flank during 1930 by Sun Oil Co.'s No. 1 Winfree in a sand at 5,327 feet, and by the close of the year three additional good producers had been brought in. With seven different operating companies and divided ownerships, the competitive play along the line of the dome put more than 25 rigs in active operation there at the peak. This kept up a steady string of completions in the almost uniform horizon at 5,200-5,300 feet, running the daily production of the field up to new high marks around 32,000 bbls. and the total Texas Coast production to a point considerably above the allowable of 140,000 bbls. as had been set by the State

(Continued on Page 174)

GULF COAST—TEXAS (Continued)

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
SARATOGA:							
Daily average	1,141	930	1,039	985	1,088	1,089	
Month	35,360	26,040	32,209	29,550	33,727	32,683	189,569
SOUR LAKE:							
Daily average	2,071	2,023	2,211	2,197	1,873	1,835	
Month	64,191	56,644	68,543	65,912	58,060	55,056	368,406
SOUTH LIBERTY:							
Daily average	2,756	2,490	2,216	1,978	1,959	1,846	
Month	85,440	69,720	68,700	59,338	60,722	55,377	399,297
SPINDLETOP:							
Daily average	13,275	12,613	11,321	10,272	9,543	8,717	
Month	411,535	353,164	350,951	308,167	295,832	261,509	1,981,158
WEST COLUMBIA:							
Daily average	4,461	4,263	4,347	4,116	4,164	4,092	
Month	138,301	119,364	134,759	123,473	129,070	122,745	767,712
Daily average	152,825	145,888	143,121	150,574	144,718	137,251	145,747
Month	4,737,565	4,084,864	4,436,758	4,517,220	4,486,248	4,117,542	26,380,197

GULF COAST—SOUTH LOUISIANA

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
ANSE LA BUTTE:							
Daily average	68	50	48	68	66	56	
Month	2,104	1,400	1,419	2,045	2,046	1,688	10,702
BAYOU BLUE:							
Daily average	59	132	76	65	62	57	
Month	1,814	3,696	2,358	1,946	1,925	1,703	13,442
BAYOU BOUILLON:							
Daily average	106	118	146	119	112	129	
Month	3,297	3,304	4,528	3,569	3,474	3,867	22,039
BAYOU CHOCTAW:							
Daily average	.....	.....	.....	.....	.....	108	
Month	.....	.....	.....	.....	.....	3,237	3,237
BLACK BAYOU:							
Daily average	1,038	980	796	1,609	1,536	1,485	
Month	32,175	27,440	24,670	48,273	47,617	44,565	224,740
EDGERLY:							
Daily average	341	482	433	353	309	302	
Month	10,567	13,496	13,421	10,592	9,576	9,046	66,698
HACKBERRY:							
Daily average	5,024	3,446	2,845	2,582	2,280	1,793	
Month	155,727	96,488	88,197	77,464	70,680	53,774	542,320
JENNINGS:							
Daily average	802	588	729	761	677	696	
Month	24,862	16,464	22,605	22,831	20,988	20,869	128,619
LAKE BARRE:							
Daily average	2,462	3,138	2,841	2,418	2,014	1,783	
Month	76,331	87,864	88,068	72,540	62,431	53,478	440,712
LAKE PELTO:							
Daily average	170	138	116	110	101	106	
Month	5,257	3,864	3,599	3,309	3,137	3,175	22,341
LEESVILLE:							
Daily average	.....	91	7	223	352	144	
Month	.....	2,548	221	6,685	10,915	4,319	24,688
LOCKPORT:							
Daily average	4,855	4,906	5,053	6,622	10,434	5,993	
Month	150,510	137,368	156,644	198,656	323,449	179,780	1,146,407
PORT BARRE:							
Daily average	1,801	1,716	1,940	1,810	1,733	1,363	
Month	55,845	48,048	60,141	54,305	53,713	40,899	312,951
SORRENTO:							
Daily average	43	128	56	398	334	180	
Month	1,342	3,584	1,745	11,937	10,356	5,415	34,379
STARKS:							
Daily average	649	774	770	772	757	764	
Month	20,126	21,672	23,872	23,158	23,468	22,916	135,212
SULPHUR:							
Daily average	2,391	1,964	1,658	1,745	3,650	2,397	
Month	74,106	54,992	51,394	52,358	113,154	71,920	417,924
SWEET LAKE:							
Daily average	1,144	1,329	1,059	934	1,381	1,764	
Month	35,453	37,212	34,057	28,013	42,809	52,928	230,472
VINTON:							
Daily average	5,734	5,851	6,640	6,017	5,243	5,600	
Month	177,762	163,828	205,843	180,511	162,531	168,006	1,058,481
WELSH:							
Daily average	89	77	24	.....	.....	2	
Month	2,771	2,156	756	.....	.....	60	5,743
WHITE CASTLE:							
Daily average	991	943	997	1,317	1,651	736	
Month	30,733	26,404	30,908	39,509	51,191	22,086	200,831
Daily average	27,767	26,851	26,272	27,923	32,692	25,458	27,856
Month	860,782	751,828	814,446	837,691	1,013,462	763,731	5,041,938
Total Gulf Coast daily average	180,592	172,739	169,393	178,497	177,410	162,709	173,603
Total first six months 1931	5,598,347	4,836,692	5,081,815	5,354,911	5,499,710	4,881,273	31,422,135
Total first six months 1930	5,881,489	5,619,276	6,105,265	5,980,067	6,181,740	6,214,648	36,982,479
Total first six months 1929	4,344,233	3,959,613	4,586,507	4,705,904	4,673,923	4,484,434	26,754,614
Total first six months 1928	3,796,856	3,652,390	3,796,816	3,760,253	4,155,544	4,114,796	23,276,495
Total first six months 1927	5,232,366	4,409,580	4,837,581	4,420,560	4,762,127	4,612,620	28,274,834
Total first six months 1926	3,023,877	2,820,608	3,034,633	2,842,050	3,208,721	2,849,970	17,779,409

Hobbs Development Held for Future

Large Number of Undrilled Locations. Some Important Discoveries in Each of the Rocky Mountain States

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

In the Rocky Mountain area, comprising New Mexico, Colorado, Wyoming, Montana and Utah, there were 111 wells completed during the first half of 1931, of which 36 were dry holes and 24 were gas wells. This was just a little better than half the number completed in the first half of 1930 when the total was 202, of which 68 were dry and abandoned and 28 were gas wells. New production amounted to 80,478 bbls. against 42,386 bbls. in the same period last year, the increase being due to completions in the Hobbs Pool in New Mexico. Drilling operations in the area were materially less than in the same period in former years.

NEW MEXICO

There were no major wildcat discoveries reported in New Mexico during the first half of 1931 and drilling operations showed a decided downward tendency due to proration, the low price of crude and conditions in general. While there were 56 wells, including rigs, listed as active at the end of June, a decrease of only 6 from the number in January, the figures fail to tell the entire story as the number of wells temporarily shut down, or suspended indefinitely is much larger than usual.

The Hobbs Pool was operated under a proration agreement between the 23 operators and the State of New Mexico during the entire period. On January 1, 1931, the potential production of the pool, as established by the umpire, was 1,081,578 bbls. from 134 wells on 120 units of 40 acres each. At the end of the six months' period, the potential was 1,150,443 bbls. from 144 wells on 127 units, increases during the period of 68,865 bbls. in daily potential, 10 wells and 7 units. The 280 acres added to the productive area mostly was on the western, southwestern and southeastern sides. The allowable outlet on January 1 was 31,475 bbls. and on June 30 was 37,021 bbls. The most noticeable increase took place about May 1 and was made possible by the decreases in the Wink Pool in Texas, which permitted the pipe line companies to increase their commitments proportionately. Early in the year there was a movement to increase the outlet to 50,000 bbls. and towards the end of the period there was talk of shutting in the wells entirely, but neither proposal was accepted. The proration agreement was extended for the last half of 1931 and no important changes in the situation are apparent at this time. The oil on June 30 was selling at 25 cents per barrel. There are a large number of undrilled locations in the field and the production is being taken only from one horizon just below 4,000 feet. An upper oil horizon which produces a high gravity crude, has not been developed and an important gas horizon, also, is cased off in all the producing wells.

The edge wells on the southwestern side were small producers compared to the big wells farther in. Two of the typical outside wells which mark the limits of drilling in that direction are the Amerada Petroleum Corp.'s No. 1-C State, NE cor., Section 36-18-37, which at a total depth of 4,236 feet, was given a potential of 130 bbls. of oil and 2,000,000 feet of gas, and the Landreth Producing Co.'s No. 1-C State, NE cor. NW, Section 6-19-38, which at a total depth of 4,221 feet was given a potential of 388 bbls. of oil and 1,000,000 feet of gas. A more important extension was on the southeastern side in the Midwest Refining Co.'s No. 29 Turner, C SW SW, Section 34-18-38, in the Hobbs townsite and 1 mile east of the nearest producer, which was drilled to 4,175 feet. It was given a potential of 21,352 bbls. of oil and 16,500,000 feet of gas through casing and tubing and 7,193 bbls. and 5,370,000 feet through tubing only.

Eunice Area

Outside of the Hobbs Pool, the most active development during the first six months of 1931 was in the Eunice Pool, 18 miles to the southwest. In the preceding year the Tidal Oil Co.'s No. 1 Coleman, SW cor. NE, Section 17-21-36, was completed at a total depth of 3,968 feet after plugging back from 4,147 feet, and made 950 bbls. the first 24 hours. Previous to that time the Continental Oil Co.'s No. 1 A. E. Meyers, NE SW SW, Section 17, had proven the existence of a pool. The Shell Petroleum Corp.'s No. 1 Coleman, an offset on the south to the Tidal's well, was completed in February and made 214 bbls. initial after the second shot. It was drilled to 4,005 feet and was shot with 300 quarts at 3,790-3,815 feet, 3,860-70 feet, 3,890-3,905 feet and 3,970-95 feet. The elevation of this well is 3,642 feet and it topped the brown lime at 2,881 feet. The Continental Oil Co. drilled an offset on the west of the Tidal's well in its No. 2 A. E. Meyers, SE cor. NW, Section 17-21-36. It was drilled to 3,992 feet and was shot with 200 quarts at 3,910-73 feet and made 163 bbls. the first 15 hours. A third offset one location to the south of this well was not drilled, arrangements having been made to pay the Government a compensating royalty. The Continental company drilled its No. 1-A Lockhart, half a mile to the northwest in the NE cor., Section 18. It went to 3,990 feet and made 422 bbls. of oil plus water the first 24 hours. The water was equal to about 40 per cent of the total fluid. The well also gauged 8,000,000 feet of gas. The Atlantic Oil Producing Co.'s No. 1 Coleman, SW NE NW, Section 17, about midway between the two wells last mentioned, was plugged back from 4,015 feet to 3,943 feet and gauged 1,194 bbls. in 24 hours. The Getty Oil Co. drilled in the NE cor., Section 19, and it gauged 1,142 bbls. the first 24 hours after being shot and cleaned, and the California Co.'s No. 1 Meredith, SE cor. NE, Section 19, made 225 bbls. of oil and 667,000 feet of gas the first 24 hours. There are no wells drilling in the pool at present and the field is on proration. The results indicate that while the structure is much larger in area than the Hobbs Pool, it does not hold any outlook for as big wells.

Jal Area

Only one well was drilling in the Jal area during the first half of the year and this was completed late in June. This was Leonard & Levers' No. 1 Justis, C SE NE, Section 19-25-37, two-thirds of a mile east of the Continental Oil Co.'s No. 1 Sholes, a gas well completed in 1929. The Leonard & Levers well, which proves considerable territory for gas, gauged 25,299,000 feet in 24 hours at a total depth of 2,795 feet. The elevation is 3,072 feet. It topped the anhydrite at 995 feet and the salt at 1,175 feet. The salt was bottomed at 2,595 feet and the top of the brown lime was at 2,615 feet.

Two important wildcats in Lea County were completed during the first half of 1931. The Western Drilling Co.'s No. 1 Bridges, SE cor. NW, Section 17-17-34, 2 miles southwest of the Inglefield & Bridges' No. 1 State, which was drilled several years ago and had some good shows, and 3½ miles west of the Vacuum Oil Co.'s No. 1 State, a small producer which has been shut in since completion two years ago. No. 1 Bridges was drilled to 5,083 feet and ran into sulphur water at 5,040-45 feet. Before swabbing it had 3,400 feet of fluid in the hole of which 800 feet was water and the remainder oil. It was plugged back and shot at 4,680-4,750 feet and after clean-

NEW MEXICO

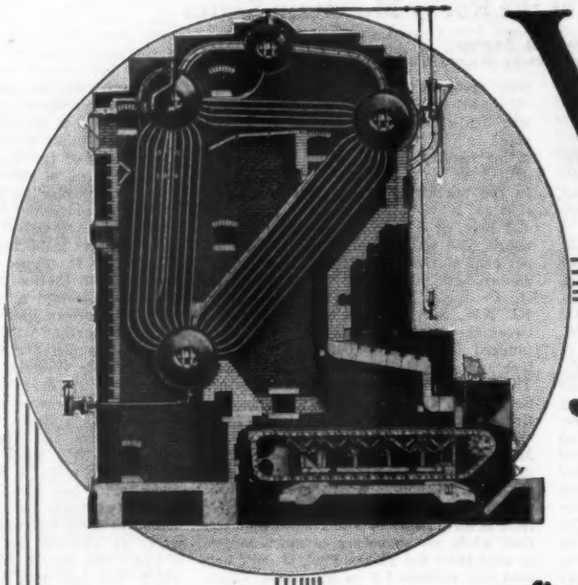
Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
HOGBACK:							
Daily average	414	460	433	459	447	503	
Month	12,834	12,880	13,423	13,770	13,857	15,090	81,854
RATTLESNAKE:							
Daily average	1,027	1,033	1,046	994	992	996	
Month	31,837	28,924	32,426	29,820	30,752	29,880	183,639
TABLE MESA:							
Daily average	52	69	70	72	68	81	
Month	1,612	1,932	2,170	2,160	2,108	2,430	12,412
ARTESIA:							
Daily average	656	540	525	522	663	1,010	
Month	20,336	15,120	16,275	15,660	20,553	30,300	118,244
GETTY:							
Daily average	135	95	177	497	303	247	
Month	4,185	2,660	5,487	14,910	9,393	7,410	44,045
HOBBS:							
Daily average	30,463	31,527	31,595	32,639	37,422	37,015	
Month	944,353	882,756	979,445	979,170	1,160,082	1,110,450	6,056,256
JAL:							
Daily average	1,170	1,268	1,081	1,234	1,171	1,161	
Month	36,270	35,504	33,511	37,020	36,301	34,830	213,436
EUNICE:							
Daily average	2,479	2,099	2,483	686	453	452	
Month	76,849	58,772	76,973	20,580	14,043	13,560	260,777
MALJAMAR:							
Daily average	468	385	487	326	526	301	
Month	14,508	10,780	15,097	9,780	16,306	9,030	75,501
LEA CITY:							
Daily average	2,920	2,639	2,522	2,562	2,644	2,503	
Month	90,520	73,892	78,182	76,860	81,964	75,090	476,508
Daily average	39,784	40,115	40,419	39,991	44,689	44,269	41,562
Total first six months 1931	1,233,304	1,123,220	1,252,989	1,199,730	1,385,359	1,328,070	7,522,672
Total first six months 1930	315,549	238,532	337,528	374,880	558,589	686,040	2,511,118
Total first six months 1929	87,668	83,384	89,621	98,640	96,751	88,762	544,826
Total first six months 1928	74,865	59,981	69,347	68,160	73,470	58,860	404,683
Total first six months 1927	136,679	138,460	148,738	142,140	112,530	102,120	780,667

COLORADO

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
MOFFATT:							
Daily average	913	1,073	983	956	933	907	
Month	28,303	30,044	30,473	28,680	28,923	27,210	173,633
FORT COLLINS:							
Daily average	1,141	1,065	972	984	991	1,004	
Month	35,371	29,820	30,132	29,520	30,721	30,120	185,684
FLORENCE:							
Daily average	504	461	244	441	365	326	
Month	15,624	12,908	7,564	13,230	11,315	9,780	70,421
ILES:							
Daily average	950	981	1,088	1,015	1,162	1,440	
Month	29,450	27,468	33,728	30,450	36,022	43,200	200,318
TOW CREEK:							
Daily average	355	365	372	365	366	347	
Month	11,005	10,220	11,532	10,950	11,346	10,410	65,463
WALDREN:							
Daily average	.....	.....	.....	.....	.....	56	
Month	.....	.....	.....	.....	.....	1,680	1,680
ORCHARD:							
Daily average	378	317	286	336	353	352	
Month	11,718	8,876	8,866	10,080	10,943	10,560	61,043
Daily average	4,241	4,262	3,945	4,097	4,170	4,432	4,189
Total first six months 1931	131,471	119,336	122,295	122,910	129,270	132,960	758,242
Total first six months 1930	151,187	146,860	144,274	133,590	137,175	136,950	850,036
Total first six months 1929	215,016	182,280	213,125	197,130	223,727	224,220	1,255,498
Total first six months 1928	234,635	232,625	259,563	203,610	204,382	218,940	1,353,756
Total first six months 1927	.....	.....	.....	.....	.....	.....	1,398,539



Vogt

for The Oil

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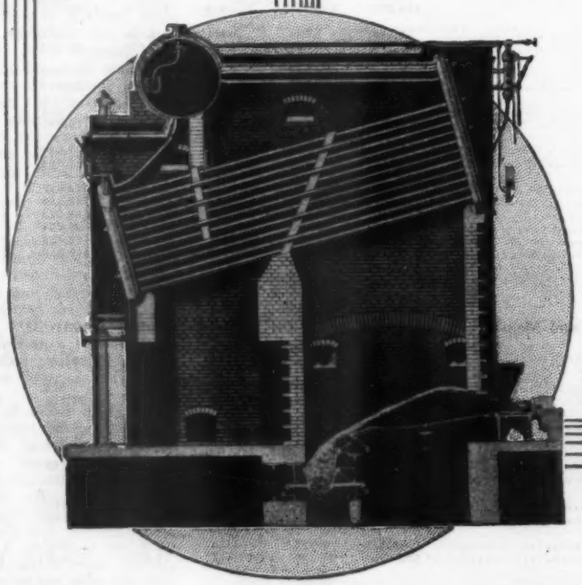

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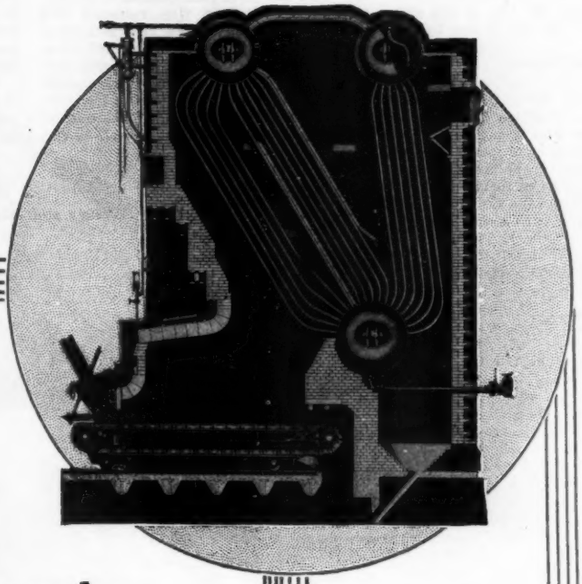

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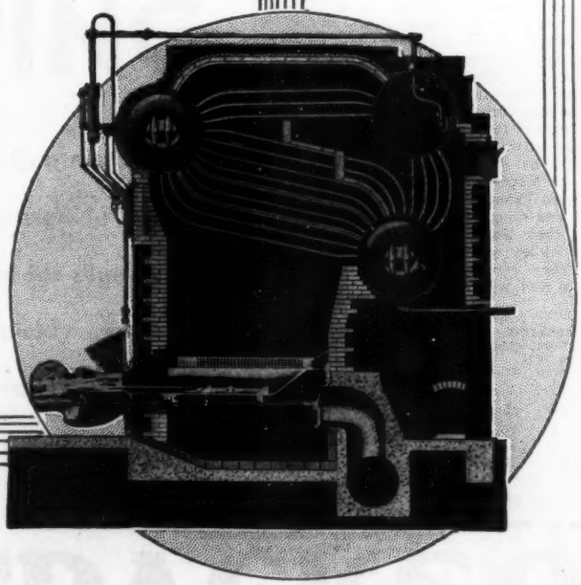

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ing out swabbed 25 bbls. per day. This not being commercial at that depth, the hole was plugged and abandoned. The other wildcat was in the Lovington area and was drilled by Galt, Brown and others in their No. 1 State, SW NW NW, Section 9-15-35. It was plugged at a total depth of 5,127 feet. The elevation is 4,019 feet. The top of the anhydrite was found at 1,920 feet, the top of the salt at 2,035 feet and the top of the brown lime at 3,200 feet.

Eddy County

There were only 7 wells drilled to completion in Eddy County during the first half of 1931, of which 3 were producers, 3 were dry and 1 gas well. The Ohio Oil Co. retired as a purchaser of crude in the Artesia Field last fall and the Illinois Pipe Line Co. turned back to the New Mexico Pipe Line Co. its leased line. The Continental Oil Co. is the principal buyer for its refinery. The Phillips Petroleum Co. closed down its gasoline plant erected in 1926 and two small refineries were built to handle the production of some of the small operators. The Jackson Pool, which was shut in last August, was given some relief on January 1 when the Continental Oil Co. agreed to take 175 bbls. daily from that pool. Only two wells were completed in the Jackson Pool, one of these, Flynn, Welch & Yates' No. 2 Stephens, proving to be the best producer so far completed. It is located in the NW NE SW, Section 13-17-30, and averaged 518 bbls. for three days from 3,451-57 feet. Leonard & Levers' No. 5 State, C E half NE SE, Section 20-17-29, was a 2,000,000-foot gas well at 2,130-2,242 feet, and extended the gas area developed by that firm one-fourth of a mile to the west. One wildcat drilled in Eddy County was Lockhart & Co.'s No. 1 Livingston, C SW SW, Section 23-24-28, Pearce Canon district, which was abandoned at 3,325 feet. It was flowing sulphur water from the Delaware sand topped at 3,000 feet. The surface is Permian, the elevation 2,915 feet and the top of the salt was at 535 feet. The Getty Oil Co. drilled in a producer in the Twin Mounds Pool in its No. 6 Dooley, C NW SW, Section 24-20-29, at a total depth of 1,350 feet. It pumped 80 bbls. initial and is located between two producers.

Harding County

A wildcat which attracted considerable attention was the Kummbaca Oil & Gas Co.'s No. 1 Kerline, NW cor. SE, Section 34-21-30, in Harding County, which at 940-73 feet gauged 3,654,000 feet of gas testing 98 per cent carbon dioxide. It had a small flow at a higher level. There is considerable interest in carbon dioxide gas wells due to the increasing use of the gas in the manufacture of dry ice. The well is shut down for orders at 973 feet.

There were no new discoveries reported in the northwestern part of the State, and the principal development was the drilling in of two gas wells by the Southern Union Gas Co. in the Kutz Canon area in San Juan County. In Valencia County, Thomas B. Harlan and others drilled a test of 6,900 feet in their No. 1 Harlan, NW cor., Section 5-6n-2w, which tested the Pennsylvanian. They were not satisfied with the results and will drill another.

NEW MEXICO
Summary of Wells Completed First Six Months 1931

County—	Comp.	Prod.	Dry	Gas
Curry	1	0	1	0
Eddy	7	623	3	1
Lea	20	73,596	3	1
San Juan	4	0	0	4
Valencia	2	0	2	0
Total	34	74,219	9	6
Same period 1930	56	31,494	22	7
Difference	22	42,725	13	1
Completions by Months				
January	10	21,788	4	4
February	13	41,748	3	0
March	3	4,108	1	0
April	3	5,052	0	0
May	2	0	2	0
June	3	1,523	0	2
Total	34	74,219	9	6

COLORADO

One new gas field was opened up in Colorado during the first half of 1931, this being the Powder Wash structure, 20 miles east of the Hiawatha Dome, in Moffat County, and just south of the Wyoming line. The discovery well was drilled by the Mountain Fuel Supply Co. in its No. 1 Burton Musser, C NE, Section 5-11n-97. The location for this well was made early in 1929, but it did not begin spudding until the spring of 1930 and shut down for the winter at 2,145 feet with the 13⅜-inch cemented on bottom. When drilling was resumed this spring it went only a few feet to a total depth of 2,152 feet when it opened up a flow of gas which gauged 35,188,000 feet in 24 hours with a pressure of 685 pounds to the square inch. The discovery was made in the upper Wasatch formation of Eocene age. Geologically, the well is the highest producer in the Rocky Mountain area, the Hiawatha gas production coming from the lower Wasatch. The presence of a structure at Powder Wash was noted in the United States Geological Survey's Bulletin 751-G by Sears. It was subsequently mapped by William T. Nightingale, geologist for the Mountain Fuel Supply Co. Gas sands were found in the discovery well at 1,892-95 feet, 2,128-32 feet and 2,152 feet. Water sands were cut at 35-40 feet, 640-42 feet and 690-700 feet.

Two shallow gas horizons were found in the Berthoud Field in Larimer County where there is some oil and gas production at greater depth. The Standard Oil Co. of Colorado's No. 1 Hall, NE cor., Section 20-4n-69, an offset on the west to the same company's No. 1 Hertha, a 100-bbl. oil well in the Muddy sand at a total depth of 3,792 feet, encountered gas at 668-700 feet in a stray sand. It gauged 1,060,000 feet in 24 hours and was completed at that depth. The Raddatz Corp., drilling only a short distance away in the northeast corner of the same section, missed the gas in this horizon, but had a flow of 300,000 feet at 100 feet. It will take additional prospecting to determine the value of the new horizon, but so far the indications are

(Continued on Page 170)

MONTANA

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
BANNATYNE:							
Daily average	81	64	53	49	54	51	
Month	2,511	1,792	1,643	1,470	1,674	1,530	10,620
CAT CREEK:							
Daily average	1,057	1,062	1,039	1,009	1,033	1,006	
Month	32,767	29,736	32,209	30,270	32,023	30,180	187,185
KEVIN-SUNBURST:							
Daily average	4,241	4,532	3,991	4,147	4,310	4,416	
Month	131,471	126,896	123,721	124,410	133,610	132,480	772,588
PONDERA:							
Daily average	1,417	1,815	1,690	1,675	1,545	1,494	
Month	43,927	50,820	52,390	50,250	47,895	44,820	290,102
LAKE BASIN:							
Daily average	60	62	60	60	57	56	
Month	1,860	1,736	1,860	1,800	1,767	1,680	10,703
BORDER:							
Daily average	543	757	681	691	688	707	
Month	16,833	21,196	21,111	20,730	21,328	21,210	122,408
DRY CREEK:							
Daily average	444	633	821	697	511	485	
Month	13,764	17,724	25,451	20,910	15,841	14,550	108,240
Daily average	7,843	8,925	8,335	8,328	8,198	8,215	8,297
Total first six months 1931	243,133	249,900	258,385	249,840	254,138	246,450	1,501,846
Total first six months 1930	253,456	233,408	267,561	298,410	304,172	289,350	1,646,357
Total first six months 1929	261,299	257,656	293,973	298,830	350,235	347,610	1,809,606
Total first six months 1928	363,370	339,679	358,112	350,520	338,272	313,260	2,063,213
Total first six months 1927	426,498	399,868	452,600	417,000	434,155	462,330	2,592,451

WYOMING

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
BIG MUDDY:							
Daily average	1,855	1,876	1,907	1,965	1,842	1,844	
Month	57,505	52,528	59,117	58,950	57,102	55,320	340,522
DALLAS-DERBY:							
Daily average	644	754	621	651	656	647	
Month	19,964	21,112	19,251	19,530	20,336	19,410	119,603
DUTTON CREEK:							
Daily average	.....	123	109	108	92	111	
Month	.....	3,444	3,379	3,240	2,852	3,330	16,245
ELK BASIN:							
Daily average	701	658	685	671	694	707	
Month	21,731	18,424	21,235	20,130	21,514	21,210	124,244
FERRIS:							
Daily average	16	38	34	28	30	31	
Month	496	1,064	1,054	840	930	930	5,314
FRANNIE:							
Daily average	835	884	904	890	913	917	
Month	25,885	24,752	28,024	26,700	28,303	27,510	161,174
GRASS CREEK:							
Daily average	1,918	1,895	1,930	1,963	2,060	2,088	
Month	59,458	53,060	59,830	58,890	63,860	62,640	357,738
HUDSON:							
Daily average	291	425	228	529	310	308	
Month	9,021	11,900	7,068	15,870	9,610	9,240	62,709
LA BARGE:							
Daily average	1,705	1,731	1,673	1,279	1,266	1,210	
Month	52,855	48,468	51,862	38,370	39,246	36,300	267,102
LANCE CREEK:							
Daily average	142	178	178	183	252	247	
Month	4,402	4,984	5,518	5,490	7,812	7,410	35,616
LOST SOLDIER:							
Daily average	3,977	4,722	2,799	4,579	3,815	3,325	
Month	123,287	132,216	86,769	137,370	118,265	99,750	697,657
MULE CREEK:							
Daily average	.....	.....	.....	.....	.....	.....	.....
Month	.....	.....	.....	.....	.....	.....	.....
OREGON BASIN:							
Daily average	1,541	1,319	1,378	1,440	1,446	1,461	
Month	47,771	36,932	42,718	43,200	44,826	43,830	259,277
OSAGE:							
Daily average	1,442	1,363	1,228	1,233	1,273	1,305	
Month	44,702	38,164	38,068	36,990	39,463	39,150	236,537
POISON SPIDER:							
Daily average	293	495	249	742	216	210	
Month	9,083	13,860	7,719	22,260	6,696	6,300	65,918
ROCK CREEK:							
Daily average	2,016	1,939	1,897	1,928	1,951	1,885	
Month	62,496	54,292	58,807	57,840	60,481	56,550	350,466
SALT CREEK:							
Daily average	26,406	26,325	24,937	26,065	25,810	25,725	
Month	818,586	737,100	773,047	781,950	800,110	771,750	4,682,543
BYRON:							
Daily average	9	11	5	10	9	10	
Month	279	308	155	300	279	300	1,621
TEAPOT:							
Daily average	23	25	24	25	22	23	
Month	713	700	744	750	682	690	4,279
SOUTH CASPER CREEK:							
Daily average	.....	.....	.....	.....	235	570	
Month	.....	.....	.....	.....	7,285	17,100	24,385
MIDWAY:							
Daily average	.....	45	.....	.....	.....	.....	
Month	.....	1,260	.....	.....	.....	.....	1,260
TORCH LIGHT:							
Daily average	.....	.....	.....	24	.....	.....	
Month	.....	.....	.....	720	.....	.....	720
Daily average	43,814	44,806	40,786	44,313	42,892	42,624	43,176
Total first six months 1931	1,358,234	1,254,568	1,264,366	1,329,390	1,329,652	1,278,720	7,814,930
Total first six months 1930	1,430,898	1,409,184	1,587,665	1,527,930	1,565,283	1,406,850	8,927,810
Total first six months 1929	1,512,087	1,442,336	1,599,104	1,490,430	1,581,806	1,520,160	9,145,923
Total first six months 1928	1,756,505	1,598,602	1,714,889	1,748,520	1,908,918	1,834,410	10,561,844
Total first six months 1927	1,870,727	1,678,180	1,840,439	1,838,070	1,896,361	1,852,920	10,976,637

FAST STEPPING

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Central and Western Texas Were Dull

A Half Year of Inactivity in North Central, West Texas and Panhandle Fields but With Some Discoveries From Wildcatting

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

The North Texas, or Wichita Falls district; Central Texas, or Ranger district, and West Texas and Panhandle were all affected by the development of the East Texas Field, and the first half of the year was a season of unusual dullness, broken only by a few minor discoveries in the Permian Basin area of West Texas.

The first six months' drilling activities in the Permian Basin in West Texas dwindled to a minimum. There were probably fewer wildcats drilled, and field wells completed than at any time since the discovery of the McCamey Field in September, 1924, and with the crude from the pools in the district only bringing 25 cents per barrel as of June 30 and 10 cents per barrel since, still fewer tests will be sunk within the next few months, and the fields that are already producing will see but few more completions in them, these fields having reached an almost absolute standstill, producing their allowances as designated by the proration advisory committees which advise in the matters of increasing or decreasing the allowables per wells and pools.

The Yates Pool committee at its last meeting in Dallas, June 16, recommended that the daily allowable of that field be maintained at 70,000 bbls., the Winkler County Field is producing around 44,000 bbls. per day, with the Crane-Upton Fields held down to approximately 18,000 bbls. per day, curtailment of the production aiding in keeping down the water head, and insuring longer life of the fields, and a consequent greater amount of ultimate production from the wells and leases. The ultimate recovery from the Yates Pool is placed at around 700,000,000 bbls. from its 15,000 producing acres, which gives an estimated recovery of nearly 50,000 bbls. per acre.

Andrews County, north of Ector County, and in which there are two small wildcat producers was eliminated from the interesting class of West Texas counties during the latter part of 1930 and fore part of 1931 by several dry holes in various parts of the county.

Showing in Schleicher

The most recent oil showing of importance in West Texas is in Wessner and others' No. 1 Nicks in Section 77, Block LL, T. C. Survey, near the town of Eldorado in Schleicher County, located in the Edwards Plateau region, and only a short distance from the Phillips Petroleum Co.'s No. 1 Whitten in the same county, which bailed some oil a few months ago. The Nicks test is showing up even better than the Whitten test, and may yet prove to be the first commercial producer in Schleicher County. However the production is coming from 4,000-06 feet, and drilling is expensive. Major companies hold the majority of surrounding leases.

Cranfill Brothers and Gulf Production Co.'s No. 1 Tubb in Section 8, Block B-27, western Crane County, which showed up for a deep producer in October, 1930, still remains incomplete with the company drilling up iron in the hole, and production remaining negligible, deepening having proven nothing of merit. The second test drilled in the area, about 2 miles south of the Tubb test, was abandoned as a dry hole at a total depth of 4,457 feet, March 21, 1931, marking the area south of the discovery as profitless.

Tests in Pecos County

T. B. Slick estate and others' No. 1 August in Section 1,216 G.C.&S.F. Survey, northern Reagan County, proved a failure and was plugged at a total depth of 3,145 feet. This was another test put down in an effort to pick up the Big Lake pay, which has been the cause of many such holes being drilled throughout the county.

Penn Oil Co.'s No. 1 Alvis in Section 155, Block 3, T.&P. Survey, approximately 15 miles southwest of Fort Stockton in Pecos County, in January struck a pocket of gas at 865 feet with an increase showing from 905-15 feet and later picking up some slight oil showings, but it proved as many other tests in the county, and was abandoned at a total depth of 3,925 feet. The main showing of oil was 2,601-02 and around 3,000 feet.

Pure Oil Co.'s No. 1 Harrison in Section 203, Block 3, T.&P. Survey, in the same area as the above mentioned well, has been shut down and temporarily abandoned at a total depth of 5,000 feet.

The Humble Oil & Refining Co. added another dry hole to Pecos County in March, 1931, when it abandoned its No. 1 Kokernot at a total depth of 6,170 feet. This test was located in Section 227, Block 10, G.H.&S.A. Survey, and removed that area from producing possibilities. The depth to which this hole was drilled exceeds the average test in Pecos County by about 2,500 feet, consequently it was an exceptionally interesting deep test.

Big Well in Deep Sand

Group No. 1 Oil Corp. and Continental Oil Co.'s No. 4-B University, the ninth deep producer in the Big Lake Pool, Reagan County, was completed in January for the largest of the deep producers, flowing at the rate of 170 bbls. per hour

NORTH TEXAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

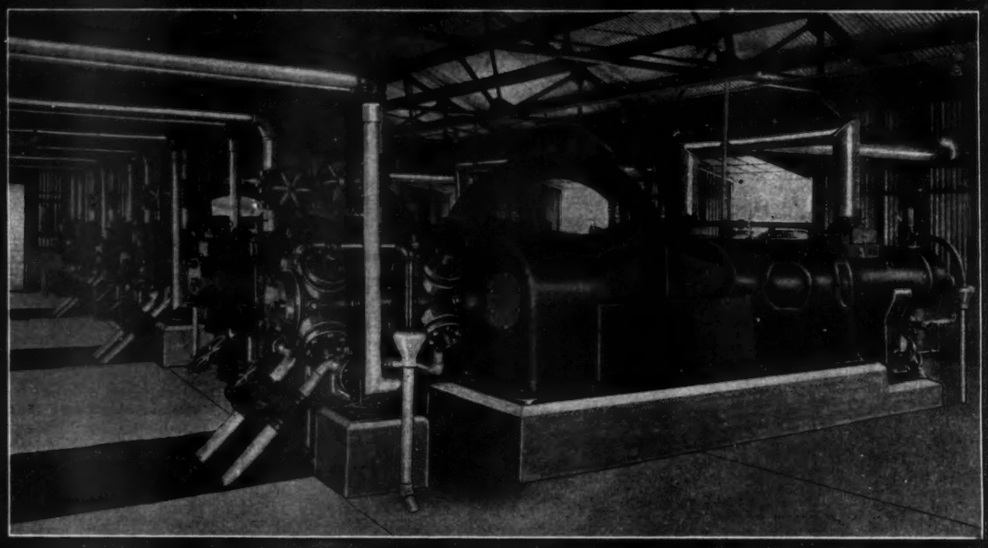
	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
BURKBURNETT:							
Daily average	7,611	7,483	6,670	7,012	6,710	6,816	
Month	235,941	209,524	206,770	210,360	208,010	204,480	1,275,085
ELECTRA:							
Daily average	8,703	8,577	8,362	8,546	8,313	8,401	
Month	269,793	240,156	259,222	256,380	257,703	252,030	1,535,784
IOWA PARK, K. M. A.:							
Daily average	3,714	3,480	4,013	3,610	3,331	3,326	
Month	115,134	97,440	124,403	108,300	103,261	99,780	648,318
ARCHER COUNTY:							
Daily average	13,139	11,717	11,547	12,086	11,656	11,573	
Month	407,309	328,076	357,957	362,580	361,336	347,190	2,164,448
CLAY COUNTY:							
Daily average	644	645	626	611	545	610	
Month	19,964	18,060	19,406	18,330	16,895	18,300	110,955
WILBARGER COUNTY:							
Daily average	12,660	9,782	10,233	9,757	10,006	9,974	
Month	392,460	273,896	317,223	292,710	310,186	299,220	1,885,695
MONTAGUE COUNTY:							
Daily average	3,956	3,622	3,637	3,503	3,401	3,442	
Month	122,636	101,416	112,747	105,090	105,431	103,260	650,580
YOUNG COUNTY:							
Daily average	11,151	12,067	13,068	12,191	12,180	12,614	
Month	345,681	337,876	405,108	365,730	377,580	378,420	2,210,395
BAYLOR COUNTY:							
Daily average	848	640	569	496	468	467	
Month	26,288	17,920	15,779	14,880	14,353	14,010	103,230
COOKE COUNTY:							
Daily average	1,928	1,958	1,814	1,815	1,709	1,771	
Month	59,768	54,824	56,234	54,450	52,979	53,130	331,385
FOARD COUNTY:							
Daily average	77	47	47	53	69	62	
Month	2,387	1,316	1,457	1,590	2,139	1,860	10,749
Daily average	64,431	60,013	60,526	59,680	58,353	59,056	60,365
Total first six months 1931	1,997,361	1,680,504	1,876,306	1,790,400	1,809,373	1,771,680	10,926,124
Total first six months 1930	2,765,193	2,563,792	2,860,587	3,053,580	3,155,351	3,043,020	17,442,723
Total first six months 1929	2,794,619	2,412,788	2,760,705	2,729,250	2,793,286	2,759,550	16,250,198
Total first six months 1928	2,441,002	2,247,790	2,483,100	2,465,970	2,600,559	2,687,207	14,925,628

CENTRAL TEXAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
BROWN COUNTY:							
Daily average	3,681	3,718	3,502	3,496	3,564	3,444	
Month	114,111	104,104	108,562	104,880	110,484	103,320	645,461
CALLAHAN COUNTY:							
Daily average	1,307	1,486	1,458	2,604	2,543	2,476	
Month	40,517	41,608	45,198	78,120	78,833	74,280	358,556
COLEMAN COUNTY:							
Daily average	1,004	1,506	1,400	1,640	1,741	1,672	
Month	31,124	42,168	43,400	49,200	53,971	50,160	270,023
COMANCHE COUNTY:							
Daily average	135	129	124	128	126	127	
Month	4,185	3,612	3,844	3,840	3,906	3,810	23,197
EASTLAND COUNTY:							
Daily average	3,539	3,874	3,606	3,527	3,440	3,466	
Month	109,709	108,472	111,786	105,810	106,640	103,980	646,397
ERATH COUNTY:							
Daily average	127	157	133	136	152	147	
Month	3,937	4,396	4,123	4,080	4,712	4,410	25,658
JACK COUNTY:							
Daily average	724	706	999	1,161	2,028	2,206	
Month	22,444	19,768	30,969	34,830	62,868	66,180	237,059
JONES COUNTY:							
Daily average	1,253	1,324	1,239	1,313	1,290	1,293	
Month	38,843	37,072	38,409	39,390	39,990	38,790	232,494
PALO PINTO COUNTY:							
Daily average	337	336	271	326	291	316	
Month	10,447	9,408	8,401	9,780	9,021	9,480	56,537
RUNNELS COUNTY:							
Daily average	140	120	104	86	83	92	
Month	4,340	3,360	3,234	2,580	2,573	2,760	18,837
SHACKELFORD COUNTY:							
Daily average	3,918	3,955	3,756	3,734	3,781	3,760	
Month	121,458	110,740	116,436	112,020	117,211	112,800	690,665
STEPHENS COUNTY:							
Daily average	4,644	4,647	4,539	4,497	4,362	4,382	
Month	143,964	130,116	140,709	134,910	135,222	131,460	816,381
THROCKMORTON COUNTY:							
Daily average	237	313	379	361	392	370	
Month	7,347	8,764	11,749	10,830	12,152	11,100	61,942
HASKELL COUNTY:							
Daily average	30	24	24	25	24	26	
Month	930	672	744	750	744	780	4,620
TAYLOR COUNTY:							
Daily average	.....	152	66	98	111	102	
Month	.....	4,256	2,046	2,940	3,441	3,060	15,743
Daily average	21,076	22,447	21,600	23,132	23,928	23,879	22,672
Total first six months 1931	653,356	628,516	669,600	693,960	741,768	716,370	4,103,570
Total first six months 1930	1,336,689	1,197,784	1,253,702	1,220,510	1,218,176	1,172,640	7,399,501
Total first six months 1929	1,574,423	1,368,304	1,515,249	1,451,880	1,539,057	1,471,350	8,920,263
Total first six months 1928	1,402,754	1,381,096	1,465,029	1,422,150	1,477,119	1,473,111	8,621,259

CLARKS in CANADA



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More CLARKS are used in repressuring and gas conservation work than any other make of engine. CLARK Engines lead in popularity among operators because they lead in economy and dependability.

Simplicity, great overload capacity, ease of installation, accessibility and notable fuel economy are CLARK features.

Shown above are CLARK 200 h. p. Super 2-Cycle direct gas engine driven compressors used in repressuring work in the Bow Island field, Calgary, Alberta, Canada.

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CLARK Gas Engines and Compressors 40 to 400 H. P.

with 56,000,000 feet of gas at a total depth of 8,587 feet. The well continued to gain in production each day, making over 5,350 bbls. of oil with 62,404,000 feet of gas on January 19, and increasing each day thereafter until shut in at the request of the railroad commission, to maintain the high gas-oil ratio in the field. All the deep wells in this pool have been pinched in to but a small percentage of their daily potential to keep down production in the pool, and prevent a waste of gas, and to conserve the gas-oil ratio.

Toborg Pool Active

One of the most active pools in the basin; a most unique pool because of the shallow depth from which the wells produce, around 350 to 500 feet, is the Toborg-Tippett Pool, directly northwest of the Yates Pool in Pecos County. The Shell Petroleum Corp. had been paying a flat price of 50 cents for the 22-24 gravity oil produced in the pool, up to the middle of March when the price was cut to 25 cents per barrel. But the companies operating in the pool continued to drill at the former rate, completing a good many wells during the first six months of the year. However, another price cut was levied in the middle of June, to 12½ cents per barrel which will undoubtedly check drilling to a great degree.

The Yates Pool proper has seen but few wells drilled within the last six months, the companies operating in the field abiding strictly to proration in an effort to keep down the water head, and to produce the field as economically and profitably as possible. It is likely that not another well will be drilled within the next six months in the field.

The shallow pool near Hawley in Jones County was active during the fore part of 1931. In April, Ungren & Frazier's No. 1 King, in Lot 6 of the M. Bueno Survey, came in making 600 bbls. of oil in seven hours from sand topped at 1,993-2,006 feet. Total depth of the hole is 2,006 feet. This well extended the pool a mile east.

Another important wildcat which showed up in the fore part of May as a possible discovery well for Loving County, opened the second pool for that county. It was Lewis & Slagel's No. 1 Cartwright in Section 1, Block 57, Township 1, T.&P. Survey, in the northwest part of the county. This test topped the Delaware at 3,175-80 feet and swabbed 25 bbls. of pipe line oil daily, but bottom hole water interfered with production, and the well is now being plugged back. First plugging back was from 3,179 to 3,174 feet. It is located near the New Mexico line.

There are over 50 tests, practically all of them wildcats, now standing shut down in the West Texas district, with about 35 other tests, the majority of them located in the various pools, drilling, showing that all activities are cut to the minimum in the district. There are but two or three locations made each week, with about the same number completed, balancing these activities, with but few chances of drilling and wildcatting picking up to any great extent for several months to come.

WEST TEXAS
Summary of Completions in the First Six Months, 1931

County—	Comp.	Prod.	Dry	Gas
Borden	1	0	1	0
Brewster	3	0	3	0
Coke	1	0	1	0
Crane	8	1,656	2	0
Crockett	3	72	1	0
Culberson	2	0	2	0
Ector	5	778	1	0
Fisher	5	1,049	4	0
Glasscock	3	0	3	0
Howard	20	2,148	12	0
Hudspeth	2	0	2	0
Irion	8	195	6	0
Jones	16	1,337	9	0
Loving	15	4,411	5	0
Menard	3	0	3	0
Mitchell	4	135	1	0
Pecos	41	3,607	33	1
Reeves	1	0	1	0
Reagan	5	4,954	2	0
Schleicher	3	0	3	0
Scurry	4	20	3	0
Sterling	1	0	1	0
Taylor	6	35	4	1
Terrell	3	0	3	0
Tom Green	2	0	2	0
Upton	18	3,498	6	0
Val Verde	2	0	2	0
Ward	27	2,037	3	0
Winkler	2	57	1	0
Total	221	25,959	111	2

Completions by Month

	Comp.	Prod.	Dry	Gas
January	49	2,010	33	0
February	48	9,268	20	0
March	31	3,939	13	1
April	33	3,502	16	0
May	28	4,562	14	0
June	32	2,708	15	1
Total	221	25,989	111	2

Moore County Discovery

During the middle of January, 1931, the Sunray Oil Co. completed one of the best wells ever produced in Moore County, in the Panhandle district, giving more encouragement to the lease holders in the area surrounding it, and putting the county in a more favorable light. This well is the company's No. 1-A Jones, and is located in Section 164, Block 3-T, T.&N.O. Survey, approximately 10 miles northeast of the town of Dumas.

No. 1-A Jones came in making 1,000 bbls. in nine hours, with 20,000,000 feet of gas, producing from granite wash, and this well with several other recent completions brought about the building of a small refinery on the railroad approximately 8 miles south of the pool at the new town of Sunray. The pool goes by the name of the Dumas or Sunray Pool.

Since the completion of the Jones producer, other tests have been drilled around it, proving smaller producers, but extending the pool in different directions. Cloud and Dana's No. 1 Jones in Section 169, Block 3-T, same survey, is now making an estimated 74,000,000 feet of gas, and other tests have also proved heavy gassers. Dana Oil & Gas Co.'s No. 1

(Continued on Page 182)

TEXAS PANHANDLE

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
CARSON COUNTY:							
Daily average	4,227	3,175	3,450	3,542	4,288	5,217	
Month	131,037	88,900	106,950	106,260	132,928	156,510	722,585
HUTCHINSON COUNTY:							
Daily average	8,405	9,047	7,949	8,409	9,942	9,644	
Month	260,555	253,316	246,419	252,270	308,202	289,320	1,610,082
WHEELER COUNTY:							
Daily average	328	399	273	204	171	246	
Month	10,168	11,172	8,463	6,120	5,301	7,380	48,604
GRAY COUNTY:							
Daily average	43,354	40,714	39,435	41,733	45,400	43,218	
Month	1,343,974	1,139,992	1,222,485	1,251,990	1,407,400	1,296,540	7,662,381
POTTER COUNTY:							
Daily average	6	.....	.....	.....	.....	.....	
Month	186	.....	.....	.....	.....	.....	186
MOORE COUNTY:							
Daily average	262	227	285	186	141	507	
Month	8,122	6,356	8,835	5,580	4,371	15,210	48,474
Daily average	56,582	53,562	51,392	54,074	59,942	58,832	55,759
Total first six months 1931	1,754,042	1,499,736	1,593,152	1,622,220	1,858,202	1,764,960	10,092,312
Total first six months 1930	2,655,398	2,467,080	2,750,971	2,835,960	3,297,315	3,156,941	17,163,665
Total first six months 1929	1,883,878	1,582,196	1,845,213	1,834,980	2,086,579	2,623,680	11,855,526
Total first six months 1928	2,408,359	2,287,607	2,253,173	2,044,020	2,115,409	1,966,484	13,074,052

WEST TEXAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

Field and County—	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
OGDEN, ANDREWS:							
Daily average	131	137	59	64	.....	.....	
Month	4,061	3,836	1,829	1,920	.....	.....	11,646
CHURCH FIELDS AND McELROY, CRANE:							
Daily average	20,228	19,257	19,414	18,716	18,622	17,404	
Month	627,068	539,196	601,834	561,480	577,282	522,120	3,428,980
SAND HILLS, CRANE:							
Daily average	15	8	.....	.....	.....	34	
Month	465	224	.....	.....	.....	1,020	1,709
WADDELL, CRANE:							
Daily average	27	22	31	21	29	24	
Month	837	616	961	630	899	720	4,663
WORLD, CROCKETT:							
Daily average	1,518	1,662	1,651	1,595	1,566	1,460	
Month	47,058	46,536	51,181	47,850	48,546	43,800	284,971
PENN, ECTOR:							
Daily average	6,644	6,479	5,748	6,336	6,716	6,457	
Month	205,964	181,412	178,188	190,080	208,196	193,710	1,157,550
COWDEN, ECTOR (NORTH):							
Daily average	28	38	35	146	128	76	
Month	868	1,064	1,085	4,380	3,968	2,280	13,645
SETTLES-ROBERTS AND CHALK FIELD, HOWARD-GLASSCOCK:							
Daily average	21,300	26,528	22,929	28,132	29,458	29,989	
Month	660,300	742,784	710,799	845,460	913,198	899,670	4,772,211
STEPHENS, FISHER:							
Daily average	1,051	902	743	730	696	620	
Month	32,581	25,256	23,033	21,900	21,576	18,600	142,946
BOREN, GARZA:							
Daily average	28	27	26	23	19	17	
Month	868	756	806	690	589	510	4,219
TANKERSLEY, IRION:							
Daily average	70	69	68	67	52	54	
Month	2,170	1,932	2,108	2,010	1,612	1,620	11,452
WHEAT, LOVING:							
Daily average	2,737	3,167	3,686	3,504	4,233	3,608	
Month	84,847	88,676	114,266	105,120	131,223	108,240	632,372
WESTBROOK, MITCHELL:							
Daily average	1,975	1,975	1,922	1,962	1,962	1,931	
Month	58,125	55,300	59,582	58,860	60,822	57,630	350,319
YATES, PECOS:							
Daily average	83,234	89,578	91,827	85,931	68,645	71,788	
Month	2,580,254	2,508,184	2,846,637	2,577,930	2,127,995	2,153,640	14,794,640
TAYLOR LINK UNIVERSITY, PECOS:							
Daily average	1,834	1,879	1,767	1,668	1,499	1,392	
Month	56,854	52,612	54,777	50,040	46,469	41,760	302,512
MASTERSON, PECOS:							
Daily average	5	21	15	20	....	....	
Month	248	588	465	600	....	....	1,901
PECOS VALLEY, PECOS:							
Daily average	26	242	200	175	30	....	
Month	806	6,776	6,200	5,250	930	....	19,962
BIG LAKE, REAGAN:							
Daily average	23,397	31,587	27,316	31,742	19,398	22,416	
Month	725,307	884,436	846,786	953,260	601,338	672,480	4,683,607
McCAMEY, CRANE-UPTON:							
Daily average	5,615	5,408	5,496	5,252	5,140	5,130	
Month	174,065	151,424	170,376	157,560	159,340	155,400	968,165
O'BRIEN, WARD:							
Daily average	2,218	2,316	2,563	2,618	2,472	2,214	
Month	68,758	64,848	79,603	78,540	76,632	66,420	434,801
SHIPLEY-BENNETT, WARD:							
Daily average	649	845	853	878	1,144	1,194	
Month	20,119	23,660	26,443	26,340	35,464	35,820	167,846
HENDRICK AND LECK, WINKLER:							
Daily average	45,339	48,932	46,772	43,796	42,906	42,310	
Month	1,405,509	1,370,124	1,449,932	1,313,880	1,330,086	1,269,300	8,138,831
LLANO-SCARBOROUGH, WINKLER:							
Daily average	1,840	2,129	1,934	1,864	1,809	1,757	
Month	57,040	59,612	59,954	55,920	56,079	52,710	341,315
DUNNIGAN, TAYLOR:							
Daily average	107	130	135	96	88	102	
Month	3,317	3,640	4,185	2,880	2,728	3,060	19,810
IRA, SCURRY:							
Daily average	6	6	5	3	....	....	
Month	186	168	155	60	....	....	569
Daily average	219,925	242,345	235,200	235,421	206,612	210,077	224,810
Total first six months 1931	6,817,675	6,813,660	7,291,190	7,062,640	6,404,972	6,300,510	40,690,647
Total first six months 1930	10,608,883	9,574,215	10,412,647	9,436,801	9,661,721	9,130,220	58,824,487
Total first six months 1929	11,280,341	9,966,066	11,609,104	10,599,784	10,990,292	10,987,539	65,533,126
Total first six months 1928	8,821,701	9,036,190	10,380,877	11,149,642	9,873,668	8,947,700	58,209,778
Total first six months 1927	2,126,352	1,857,800	2,331,510	2,752,080	3,514,935	3,333,150	15,915,827

Few Discoveries in Shreveport Area

Big Gas Well in Shelby County, Texas, but North Louisiana and Arkansas Had Quiet Half Year. Mississippi Results

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

The Shreveport division, which consists of North Louisiana, Arkansas, Mississippi and the border counties of East Texas, has been exceptionally quiet during the first half of 1931. There were two contributing factors to the curtailment of operations in this area, first, the discovery and development of the immense pools in nearby East Texas, and, second, the extremely low prices prevailing for crude as a direct result of overproduction of those flush fields. A great number of the independent operators as well as major companies who have been operating in North Louisiana and Arkansas have entered the new East Texas areas where the potential production is much greater and the pay found at a lesser depth than is likely to be found in either of these two states in the future.

There were no new oil pools opened up and extensions to those fields recently discovered have added little to the daily production. The wildcatting has been consistent over widely scattered areas, but, especially in Louisiana and Arkansas, the tests have been far less in number than for the first six months of 1930. A few sections have experienced intensive drilling campaigns, especially the border counties of East Texas, intensified, no doubt, by the discovery of the East Texas Field in Rusk, Gregg and other counties to the west. A recent development in one of these wildcats seems to indicate the discovery of a new gas field in that section, the extensiveness and potentiality of which is yet unknown. The new well is E. L. Chapman's No. 1 Pickering Lumber Co., on the C. E. Henry Survey, in northeastern Shelby County, which blew in unexpectedly in June, estimated to be making from 25,000,000 to 30,000,000 feet of gas daily from a total depth of 3,864 feet. The drill stem was out of the hole at the time the well started cleaning itself out, the gas coming from an open hole with the exception of 400 feet of surface casing, which later collapsed. The operators were able to set several hundred feet of 6-inch casing inside the 12-inch before it collapsed and the gas is now flowing through the smaller casing, with probably some escaping through crevices in and around the surface casing from the open hole. Attempts to kill the well have been partially successful, the flow having been checked to a great extent, and the gas that is now escaping will be used for fuel in drilling an offset which will be started immediately. The new gasser is about 2 miles from the Louisiana line, across the Sabine River from the town of Logansport in DeSoto Parish. Joaquin is the nearest Texas municipality, about 1 mile west. The nearest gas field is to the north in Panola County, the Bethany Field, near the Louisiana line, which produces from several horizons, the deepest being the Trinity at the 4,700-foot level. The Zwolle chalk rock field in Sabine Parish, which produces from the 2,300 to 2,600-foot levels, is about 25 miles southeast of the new gas area.

Formation Uncertain

No identification has been made on the formation from which the gas is coming, a log of the well not being available, but it is located on what is known as the Sabine uplift which covers a great part of North Louisiana and practically all of Shelby and Panola Counties of East Texas. The scout reports on the well show that the bit had been in hard lime for the last 600 feet, coming into that formation from broken chalk and shale. It is probably below the Woodbine in the lower Cretaceous, possibly the Comanche, with a possibility of the pay coming from the upper Trinity.

Another Encouraging Showing

Shelby County also furnished another wildcat that may eventually uncover a new pool. The Sloan-Tokio Oil Co.'s No. 1 Windham, H. English Survey, 7 miles southeast of the town of Center, held the spotlight in that section for several weeks. This well made two heads of oil of 7 and 11 minutes' duration upon the first test with liner from a depth of 3,399 feet. After sanding over, it was decided to pull the liner and set 4½-inch casing, but five joints of the liner was lost in the hole which was later sidetracked. A later test, after 4½-inch casing was set, resulted in a small amount of oil being swabbed from the well with a good quantity of gas showing. The well, though practically in a junked condition, continues to make periodical heads of oil and is furnishing enough gas to fire the boilers. Another test which will be started in this vicinity immediately may be more successful, since the operators are entirely familiar with the formations to be encountered.

Plain Dealing's Discovery

The only encouraging results from the wildcatting in North Louisiana, outside of the geological information obtained, comes from northwestern Bossier Parish, where two tests have recently shown much promise of opening up new fields. The Plain Dealing Oil Corp.'s No. 1 Nattin, Section 15-22-14, recently bailed considerable oil of 24.5 gravity, with a small amount of gas, from a total depth of 2,882 feet. Eleven feet of sand was cored from 2,871 feet to the total depth, but after failing to pay in commercial quantities, the hole was deepened to 2,890 feet, encountering a hard red formation containing no sand. The discouraging feature of the test is the absence of gas to any extent, but to offset this, no salt water has appeared. Two-inch tubing has since been placed in the well and it is flowing by heads 10 to 15 bbls. daily. About 8 miles east of the Plain Dealing well, the Flint River Oil Co. cored an encouraging sand from 3,028-46 feet in

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NORTH LOUISIANA

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
CADDO (light):							
Daily average	8,132	8,165	7,772	7,435	7,242	7,149	
Month	252,092	228,620	240,932	223,050	224,502	214,470	1,383,666
CADDO (heavy):							
Daily average	2,762	2,808	2,776	2,774	2,759	2,710	
Month	85,622	78,624	86,056	83,220	85,529	81,300	500,351
HOMER:							
Daily average	3,355	3,363	3,365	3,289	3,235	3,106	
Month	104,005	94,164	104,315	98,670	100,285	93,180	594,619
HAYNESVILLE:							
Daily average	5,416	5,615	5,764	5,944	5,711	5,523	
Month	167,896	157,220	178,684	178,320	177,041	165,690	1,024,851
DESOTO-RED RIVER:							
Daily average	2,771	2,753	2,709	2,674	2,679	2,590	
Month	85,901	77,084	83,979	80,220	83,049	77,700	487,933
ELM GROVE:							
Daily average	517	495	480	515	513	493	
Month	16,027	13,860	14,880	15,450	15,903	14,790	90,910
BELLEVUE:							
Daily average	572	592	553	562	575	440	
Month	17,732	16,576	17,143	16,860	17,825	13,200	99,336
COTTON VALLEY:							
Daily average	1,761	1,853	1,807	1,745	1,858	935	
Month	54,591	51,884	56,017	52,350	57,598	28,050	300,490
URANIA:							
Daily average	4,940	4,877	4,595	4,531	4,487	4,135	
Month	153,140	136,556	142,445	135,930	139,097	124,050	831,218
PLEASANT HILL:							
Daily average	405	410	461	447	426	403	
Month	12,555	11,480	14,291	13,410	13,206	12,090	77,032
ZWOLLE:							
Daily average	7,672	10,552	7,844	7,297	8,095	7,216	
Month	237,832	295,456	243,164	218,910	250,945	216,480	1,462,787
HOLLY:							
Daily average	893	705	633	565	539	466	
Month	27,683	19,740	19,623	16,950	16,709	13,980	114,685
SARETA-CARTERSVILLE:							
Daily average	1,909	1,733	1,471	1,233	1,207	1,060	
Month	59,179	48,524	45,601	36,990	37,417	31,800	259,511
Daily average	41,105	43,921	40,230	39,011	39,326	36,226	39,930
Total first six months 1931	1,274,255	1,229,788	1,247,130	1,170,330	1,219,106	1,086,780	7,227,389
Total first six months 1930	1,163,554	1,138,396	1,271,465	1,258,500	1,226,701	1,200,630	7,259,246
Total first six months 1929	1,114,171	990,024	1,109,986	1,069,200	1,097,121	1,068,960	6,449,462
Total first six months 1928	1,369,146	1,313,555	1,369,115	1,411,890	1,383,034	1,272,040	8,118,780
Total first six months 1927	1,589,122	1,474,004	1,589,711	1,511,250	1,469,710	1,435,020	9,068,817

ARKANSAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
EL DORADO:							
Daily average	3,907	3,825	3,066	3,636	3,620	3,554	
Month	121,117	107,100	95,046	109,080	112,220	106,620	651,183
SMACKOVER (light):							
Daily average	4,513	4,478	4,325	4,170	4,241	4,079	
Month	139,903	125,384	134,075	125,100	131,471	122,370	778,303
SMACKOVER (heavy):							
Daily average	34,035	33,494	32,220	31,946	31,492	30,106	
Month	1,055,085	937,832	998,820	958,380	976,252	903,180	5,829,549
STEPHENS:							
Daily average	866	847	853	845	853	795	
Month	26,846	23,716	26,443	25,350	26,443	23,850	152,648
NEVADA COUNTY:							
Daily average	1,014	997	992	994	995	1,100	
Month	31,434	27,916	30,752	29,820	30,845	33,000	183,767
LISBON:							
Daily average	793	382	736	768	723	716	
Month	24,738	24,696	22,816	23,040	22,413	21,480	139,183
BRADLEY:							
Daily average	59	58	57	53	51	.....	
Month	1,829	1,624	1,767	1,590	1,581	.....	8,391
CHAMPAGNOLLE:							
Daily average	4,654	4,483	3,157	2,955	2,973	2,712	
Month	144,274	125,524	97,867	88,650	92,163	81,360	629,838
MOUNT HOLLY:							
Daily average	65	59	772	.....	.....	.....	
Month	2,015	1,652	23,932	.....	.....	.....	27,599
URBANA:							
Daily average	894	966	1,217	1,707	1,706	1,753	
Month	27,714	27,048	37,727	51,210	52,886	52,590	249,175
Daily average	50,805	50,089	47,395	47,074	46,654	44,815	47,788
Total first six months 1931	1,574,955	1,402,492	1,469,245	1,412,220	1,446,274	1,344,450	8,649,636
Total first six months 1930	1,817,685	1,608,376	1,817,871	1,724,460	1,659,895	1,704,060	10,332,347
Total first six months 1929	2,453,536	2,154,194	2,303,784	2,188,680	2,220,158	2,112,270	13,432,562
Total first six months 1928	2,791,922	2,571,575	2,687,948	2,472,600	2,843,847	3,075,911	16,443,803
Total first six months 1927	4,076,469	3,574,256	3,853,920	3,378,240	3,493,669	3,366,760	21,742,314

One of the new McIntosh & Seymour Stations on the Ajax Pipe Line

FIVE OF NINE ON THE NEW AJAX PIPE LINE ARE McINTOSH & SEYMOUR STATIONS

THE recently completed 394-mile pipe line of the Ajax Pipe Line Co., between Glen Pool, Okla., and Wood River, Ill., has nine pumping stations, each containing three 500-hp. Diesel engines driving three 32,500-bbl. pumps.

The five stations at Springfield, Mo., Lebanon, Mo., Dixon, Mo., Owensville, Mo., and Hamburg, Mo., are all equipped with McIntosh & Seymour Engines exclusively.

As this line forms an important section of the long system for contemplated delivery of oil to refineries in Ohio, Kentucky, West Virginia and Canada, economical dependable pumping power is a first essential.

McIntosh & Seymour Engines were given the preference for the largest number of stations, because of the 15-year record these engines have made in the pipe line industry, and because the management knew that these units could be depended upon for long hard runs, with low fuel, attendance and maintenance expense.

The earliest McIntosh & Seymour installations in oil pumping stations, after continuous almost every-day service, are still operating at costs and fuel economies very close to the initial figures. In many instances where productiveness of and demand from certain oil fields have diminished, the moving of these McIntosh & Seymour units to more active fields has proven more profitable than buying new engines.

Let us quote on your next power needs and submit data on units for direct or Diesel-electric drive.

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McINTOSH & SEYMOUR DIESEL ENGINES

Improvement in Western Canada Fields

Notwithstanding Government Proration Orders, Production Increased. Wildcatting Continues From Coast to Coast

By Victor Lauriston
Staff Correspondent, Canadian Fields

In the Canadian fields for the first six months of 1931, the Turner Valley Field in Alberta continued, as in recent years, to be the dominant factor in production. While the physical condition of the field and the newly adopted proration policy of the Alberta government foreshadow a possible decline in production, the output of the field for the six months' period under review showed a marked increase over the first six months of 1930.

This increase will in turn increase the total production of all Canada in the same period. Official figures for all Canadian fields, compiled for the federal government by the Dominion Bureau of Statistics, cover only the first four months of the year. The detailed figures (in barrels) are as follows:

Month—	Alberta	Ontario	New Brunswick	Total
January	168,785	17,230	883	186,898
February	145,000	10,189	462	155,651
March	149,748	9,914	696	160,358
April	142,544	10,467	694	153,703
Total	606,077	47,800	2,735	656,610

For the Ontario fields, production for the six months' period will likely run close to 65,000 bbls., approximately the same as that for the like period in 1930. There may be a small decline from the 1930 total. This is a normal condition for the Ontario pools, which have been in steady production for many years, and seem to have reached their ultimate limits of extension some years ago.

In New Brunswick, the crude oil production is incidental to the operation of the Stoney Creek gas field near Moncton, and normally averages between 600 and 750 bbls. a month.

Western Canada Production

Since assuming control last October of the natural resources of the province, the Alberta provincial government has issued monthly figures covering the crude oil production of the various fields of Alberta. The detailed figures are available for the first five months of 1931, are given in Table 1.

Maintenance of production at this rate would give Alberta a total production for 1931 of 1,800,000 bbls., a new high record for the province. Apart from the Turner Valley, the Red Coulee Field, with one new producer, is holding up very well; the Wainwright Field shows a seasonal improvement; and arrangements concluded for marketing the heavy crude of the Ribstone Field for fuel oil purposes should result in a considerably larger output from this field in the latter half of 1931. It has four producing wells with a daily potential aggregate of 400 bbls.

Turner Valley Field

January was the peak month in the Turner Valley Field in both pipe line runs and actual production. The later months indicate some decline in production, as compared with January, though the figures show a decided increase over those for the corresponding months in 1930.

A factor in the Turner Valley situation has been the increase in sales direct at the wells. Recent Alberta legislation requires producing companies to sell direct to consumers where the latter wish to purchase; and these growing direct sales account for the difference between the pipe line runs given from month to month and the official production figures of the Alberta government.

Comparative figures of pipe line runs for the first six months of 1930 and 1931 show the trend of the field:

	1930	1931
January	88,975	156,658
February	78,319	132,267
March	105,835	128,975
April	87,278	114,217
May	84,046	113,614
June	111,960	*113,429
Total	556,413	764,160

*Estimate.

The figures indicate an increase of more than 200,000 bbls. over the 1930 period.

TABLE 1

Month—	Turner Valley—Naphtha	Turner Valley—Light crude	Red Coulee light crude	Wainwright heavy crude	Ribstone heavy crude	Total
January	159,588	2,525	5,959	360	353	168,785
February	137,260	1,899	5,523	....	....	144,682
March	140,217	2,146	6,156	457	772	149,784
April	132,533	1,626	6,809	1,306	270	142,544
May	135,882	1,779	6,485	1,225	262	145,633
Total	705,480	9,975	30,933	3,348	1,657	751,393

Eastern Canada

In eastern Canada, there has been this year little drilling activity. In the New Brunswick fields, Maritime Gas & Oilfields, Ltd., of Moncton, is doing a normal amount of work to maintain its natural gas reserves in the Stoney Creek Field.

In Nova Scotia, Imperial Oil, Ltd., which last fall drilled an unsuccessful wildcat test in Colchester County near Truro, is putting down a second test near Amherst with results as yet inconclusive. Preliminary geological work indicated conditions favorable to oil production.

In Quebec there has been in recent years extensive leasing in the St. Lawrence Valley between Montreal and Quebec; but so far little drilling has resulted. The Hope Engineering Co. is reported putting down a test, and there is a prospect of other companies undertaking some work. This field appears to be primarily a gas prospect, with incidental chances of oil.

Ontario Operations

In the province of Ontario, drilling operations are pretty well restricted to the southwestern peninsula, between Hamilton and Windsor. Practically all the drilling is being done to secure additional gas for the large pipe line companies.

A feature of this year's drilling has been the renewed activity in the Norfolk-Haldimand area. Last year the Union Natural Gas Co. secured extensive acreage in that area; and this winter and spring a series of tests was drilled. The earlier tests were exploratory while the later drilling followed up discoveries. In Haldimand County four tests were drilled in Rainham Township, all securing gas production with the largest 109,000 feet; and in Walpole Township seven tests were put down, two finishing dry and the rest productive for from 15,000 to 160,000 feet. In Woodhouse Township, Norfolk County, two small gassers and one dry hole were drilled, with one test unfinished. This will complete the Union Natural Gas Co. program in the eastern field. The gas is being piped to Hamilton.

Further west in Norfolk County, Acme Gas & Oil Co. of Toronto has finished several gassers, averaging around 500,000 feet a day; and Ajax Oil & Gas Co. is planning to develop the same field.

In Mosa Township, Middlesex County, Southern Ontario Gas Co. has secured additional encouragement for its new gas field east of Newbury. After drilling two more dry holes, No. 7 developed 2,250,000 feet a day. No. 8 proved a small gasser and No. 9 is drilling.

Further west, the Dawn Field in Lambton County, has been further tested by Union Natural Gas Co. Five tests finished dry; two old wells were deepened, materially increasing production; and No. 56 proved an exceptionally good producer, with 10,000,000 feet a day. No. 60 is drilling. In the Oil Springs Field, Sarnia Oil & Gas Co. is drilling on the former holdings of the Oil Springs Oil & Gas Co. has secured some deep gas, and is planning further drilling. This company will supply gas for the Oil Springs system and for the new distributing system of the Southern Ontario Gas Co. in Sarnia Township.

Kent County is witnessing a little wildcatting. A test by Frank H. Stover & Son at McKays Corners in Harwich Township is down 1,575 feet without a show; while in Raleigh Township the Union Natural Gas Co. will put down a test for the Olga Oil & Gas Co. at a point 6 miles north of the nearest producer in the D'Clute Field. The latter area, close to Lake Erie, has seen only two tests, one a dry hole and the other just starting. Still further west, two tests for oil in the old Tilbury Field near Fletcher proved unsuccessful; while Southern Ontario Gas Co. got gas production in one well drilled in Tilbury East.

In northwest Kent and southwest Lambton, the Black Bear Syndicate of Detroit has leased considerable acreage along the Sydenham River but though several tentative locations have been made, no actual drilling has yet been done. This is an entirely untested area, so far as deep drilling is concerned.

Turner Valley Prorating

Following the taking over of Alberta's natural resources last October by the provincial government, new regulations governing oil and gas production have been introduced. While in many respects these are little changed from the regulations in force under the federal regime, there are indications of a tendency toward stiffening the rental and drilling requirements, with a view apparently, to discouraging the speculative holding of leases and encouraging or forcing the drilling of actual tests.

The outstanding feature of the new regulations is the application to Turner Valley of natural gas conservation measures, under which producing companies will be restricted to 40 per cent of the

(Continued on Page 180)

HART COUNTY FEATURED KENTUCKY IN FIRST HALF YEAR'S FIELD WORK

By George A. Whitney
Staff Correspondent, Kentucky-Tennessee

Fewer wells were completed in Kentucky in the first half of 1931 than in the first half of 1930, due to the shutdown that still prevails in the Tri-County Field of Ohio, Daviess, Hancock and adjoining counties, and the low price of crude has a great deal to do with the slackness of new development work, which now covers almost the entire State from east to west. The first half of 1931 shows 258 completed wells, 97 oil wells with an initial production of 7,853 bbls., 88 dry holes and 73 gas wells, compared with the first half of 1930, when there were 551 completions, 338 producers with an initial of 11,810 bbls., 166 dry holes and 47 gas wells, the decrease amounting to 293 completions, 3,957 bbls. less production, 78 fewer dry holes, 26 more gas wells and 241 less oil wells.

The most important field in Kentucky since the opening of the Tri-County Field was Hart County. The opening of this rich shallow pool occurred in October, 1930, and there was a grand rush of drilling tools sent into the new field after the well drilled by Norris & Davis on the L. McKinney farm, in what is known as the Legrande Pool, was rated as a 2,500-bbl. initial producer from the Corniferous formation at around 650 feet.

In the first half of 1931 Hart County held the lead in development work with 103 completions, 40 producers with an initial of 6,255 bbls., 45 dry holes and 18 gas wells.

In January, D. T. Bolling found a 100-bbl. producer in a test on the E. Jackson farm in the Pellville Field of Hancock County. In Hart County, unnamed parties found a 200-bbl. producer on the T. F. Slaughter farm, in the Legrande Pool, and several 100-bbl. producers were also accounted for in the same rich pool. Missouri-Kansas Pipe Line Co. found a very good gas well on the Richards heirs farm, in the Kirkwood Springs area of Hopkins County, at a depth of 1,107 feet. Jordon & Curtis drilled a wildcat on the Crofton negro school lot, in Christian County, with a volume of 1,500,000 feet of gas at 600 feet.

In February, Vickers & White struck a gas well with a volume of 1,500,000 feet in a test on the Mrs. Sewell Edwards farm, in Barrel County, in the Beaver sand at 585 feet. Calvert, Watts and others' No. 1 Edwards Estate, same county, and just south of the hamlet of Sturgeon, showed 2,750,000 feet. Taylor & Elwell's test on the Wes Burke farm, in Hancock County, has a gas volume of 1,000,000 feet; and in the same county D. T. Bolling's No. 4 J. W. Crowe farm produced 150 bbls. initially at 550 feet. Clarence Bundy and others' test several miles northwest of the Legrande Pool and about 5 miles southwest of Munfordville, in Hart County, produced 500 bbls. initial from a depth of 858 feet. Smith, Daugherty and others brought in a 350-bbls. well on the P. F. Larimore farm, also in the Legrande Pool; and the Wood-Snyder Oil Co.'s No. 2 Mrs. Myrtle Richardson farm, same pool, showed 250 bbls. in 24 hours. C. E. Daugherty struck a 350-bbl. initial producer on the Mrs. Hand farm, also in Hart County. Standard Exploration Syndicate found a producer for 100 bbls. initial on the J. M. McNeely farm on the Farmersville Dome in Caldwell County in the Bethel sand from 643-50 feet.

In March, Doctor Sirman drilled in a test on the William Hensley farm, in the north end of the Legrande Field, in Hart County, which showed an initial of 150 bbls., and unknown parties found one

(Continued on Page 176)

New Gas Fields Feature Eastern Area

Northern Pennsylvania and Southern New York Busiest Spots in the Appalachian Fields. Conservation of Oil

By L. H. Walter

Drilling interest in the Eastern fields during the first six months of 1931 centered largely in a new gas-producing area in Tioga County, Pennsylvania, and Steuben County, New York, and adjacent territory. During this period 14 producing wells were completed in the Tioga district with a total estimated initial daily gas production of 225,000,000 feet, while 52 producing wells were completed in the Wayne-Dundee Field with a total estimated initial capacity of 240,000,000 feet. A report of the Pennsylvania state geologist shows the Tioga Field status on June 5 as indicated in the accompanying table.

In June, 1930, the Allegany Gas Co., the producing organization of the North Penn Gas Co. of Port Allegany, N. Y., and Oil City, Pa., began drilling a well on the Sabinsville anticline in Farmington Township, Tioga County, on the Palmer farm. A large flow of gas was encountered at 4,102 feet on September 10 in the Oriskany sand. The well blew wild until brought under control by the Halliburton process on September 25 and was put on production October 11. Initial production was variously reported as 10,000,000 to 20,000,000 feet and the production after drilling out the cement was about 2,000,000 to 2,500,000 feet a day.

Leasing began immediately in volume and by middle December more than 2,500 leases had been recorded in Tioga County, 800 in Potter County and many more in Clearfield, Cameron, Clinton, Lycoming, Sullivan, Bradford and Susquehanna Counties in Pennsylvania and bordering counties in New York. Before the test well was under control additional wells were being planned and within three months 10 other locations were active.

The largest producing well in the Tioga Field up to June 30, and the largest gasser east of the Mississippi in history, was drilled by the Penn United Gas Co. on the Benjamin Meaker farm, Tioga Township, Tioga County. It came in February 20, 1931, and assumed proportions which caused it to flow wild until harnessed by the Halliburton process on March 12. Its volume has been estimated from 65,000,000 to 100,000,000 feet daily.

Two other wells of large proportions were brought in about the same time as the Meaker well, No. 1 E. W. Close, of the Lycoming Natural Gas Co., the No. 1 Farr and the No. 1 Hoyt of the same company.

According to George H. Ashley, state geologist, the cost of drilling a well to Oriskany sand in the Tioga section is estimated from $13,000 to $16,000 and the time required from one and one-half to two and one-half months.

Most of the wells are started with 10-inch holes. Common practice is to run 100 to 200 feet of 10-inch surface pipe, to set 750 to 900 feet of 8-inch casing and to cement 4,000 feet of 6-inch casing above the Oriskany. When the sand is penetrated the boilers are moved back, control arrangements placed on the well and the sand drilled into.

For some weeks following the discovery of gas, leases were sold throughout the region at prices reported to be as low as 25 cents an acre and $100 for a gas well. Competition in leasing and increased familiarity with lease practice and relative values on the part of landowners made a material difference. One dollar an acre is more nearly the average low price prevailing within a reasonable distance of the field and one-eighth royalty is commonly asked.

In the New York field, the Oriskany sand is found at a much shallower depth, 1,000 to 1,700 feet, and the production is much smaller, 500,000 to 5,000,000 cubic feet being reported. In the Wayne village town lot development in Schuyler County a large number of successful wells have been drilled and sweet gas produced, but they have been spaced too closely for very successful operation.

In discussing the situation late in June, Pennsylvania's secretary of internal affairs, Philip H. Dewey, reported as follows: "At the beginning of June there were 65 wells in the northeastern Pennsylvania or Tioga gas region. Of 18 wells completed, 10 are producers that have a total estimated capacity of about 210,000,000 cubic feet daily. The productive wells are distributed throughout a belt 7½ miles long and a mile or less wide. All are located near the crest of the Sabinsville anticline in Farmington and Lawrence Townships, Tioga County. Individual wells have yielded 12,000,000 to 70,000,000 feet of gas in 24 hours at rock pressure averaging approximately 1,650 pounds. As yet only about 2,500,000 feet a day is being marketed. The remainder is shut in awaiting the completion of pipe lines.

Palmer Discovery Significant

"The Palmer discovery was significant in several ways. The volume of gas was large and the pressure under which it occurred was unusually high for Pennsylvania. That the Tioga Field is a gas field of importance is definitely established by the productivity and distribution of those 10 producing wells. Interest at present centers in the fortunes of a dozen or more wells that are being drilled at varying distances from the proven field. These distant or wildcat wells will do much to answer the open question as to whether there are other fields in the Oriskany sand of the region. Of the distant localities where test wells are being drilled, five are in Tioga County, five in Bradford County, one in Potter County, one in Lycoming County and one in Clearfield County."

Dominant Companies

There are three dominant companies in the Tioga Field, the Lycoming Natural Gas Co., a 100 per cent subsidiary of the Standard Oil Co. of New Jersey; the Penn United Gas Co., formed of Pittsburgh and Ohio men who were interested in the McKeesport development, and the Allegheny Gas Co., a drilling company of the North Penn Gas Co., composed of Oil City, Knox and Port Allegany men. The Benedum-Trees interests were bought out early in April by the Lycoming and there have been several important mergers and acquisitions resulting in the Lycoming having more than 500,000 acres under lease. The North Penn obtained 7,000 acres of land before putting down their discovery well and since that time have been adding steadily to their holdings. The Sylvania Corp., a subsidiary of the United Gas Co., has a considerable block of acreage and nearly every gas company in the East holds, or did hold, leases in Tioga or surrounding counties. The leasing has spread throughout the central northern counties of the State and into several counties in New York State.

In the Wayne-Dundee Field the Belmont Quadrangle Drilling Corp., a subsidiary of the Columbia Gas & Electric Corp., is most active, with the Lamoka Power Corp. and the Olean-Finger Lakes Oil & Gas Co. entering the field in earnest.

Gas from two of the Tioga producers, Nos. 1 and 2 Palmer, is being used by the North Penn in its service lines. The North Penn has agreed to sell to the Lycoming the production from all its wells and the excess from these two producers.

Getting Ready to Distribute

The Lycoming has obtained 90 per cent right of way for a 20-inch pipe line to extend northward 100 miles to Syracuse. The line is intended to deliver 100,000,000 cubic feet daily without booster stations and dangerous line pressures. It will cross the state line at Lawrenceville, pass between Corning and Elmira and thence to Cortland and through the Onondaga Valley to Syracuse.

The Pennsylvania Power & Light Co. has obtained right of way from the Tioga Field into Williamsport and has started construction of 58 miles of pipe line to deliver gas to Williamsport, Montoursville, Mancy, Montgomery, Milton, Sunbur, Bloosburg and Danville.

The Meaker well still remains capped awaiting the building of lines to make use of its production.

Drilling companies are spending about $1,000,000 a month in the Tioga Field alone and some of them have large forces of men at work.

The new gas district is declared to be the most favorably located in the world, being within easy pipe line distance of large cities in central New York and Pennsylvania, the New England states and the Atlantic seaboard from Maine to below Baltimore, Md.

Slowing Up in Oil Fields

Drastic drilling curtailment prevailed throughout the Eastern Field during the first six months of 1931 with the number of completed wells diminished to 882, which was 1,560 less than the number completed during the first six months of 1930.

During the first six months of 1930 the five-spot water flood method was hitting its peak in the Bradford, Pa., and Allegany, N. Y., Fields with oil and

(Continued on Page 115)

CENTRAL WEST FIELDS, INCLUDING MICHIGAN, HAD DULL HALF YEAR

By George A. Whitney
Staff Correspondent, Central West Fields

A general review of development work over the various divisions of the Central West Field, comprising the Lima Field of northwestern Ohio, Central Ohio Field, Indiana, Illinois, Michigan and Missouri for the first half of 1931 made a rather poor showing, with a total of only 523 wells completed, of which 120 were producers with an initial production of 6,197 bbls.; 185 dry holes and 218 gas wells, while the first half of 1930, the same fields completed 1,048 wells, of which 444 were producers with an initial production of 29,661 bbls.; 319 dry holes and 285 gas wells, showing a difference in the favor of the first half of 1930 of 525 completions, 23,661 bbls. initial production; 134 more dry holes and 67 more gas wells. During the first half of 1930 there were 282 abandoned holes, while for the first half of 1931 there were 496 abandoned holes, an increase of 214.

Central Ohio as usual was the most active spot in the Central West Field. It is an old oil and gas producing area, but during the first half of this year 286 wells were completed as against 582 in the same period last year. The oil wells numbered 59, with a total initial production of 1,698 bbls. as against 190 oil wells and 9,178 bbls. of new production in the first half of last year. A total of 142 gas wells completed against 234 for the same period last year, while the dry holes for the first half of this year numbered 85 against 158 last year.

The Trenton Rock area known as the Lima Field yielded an occasional surprisingly good well in the first half of the year, and the discovery and development of shallow gas horizons in the northern end of the field was a feature.

In the Indiana fields oil was discovered in Vandeburg County, in the southwestern part of the State in January, the Vandeburg Oil Co. getting a 7-bbl. showing in Section 32, Center Township, at 915-29 feet, and a number of wells ranging from 50 to 100 bbls. initial production were brought in in the old fields.

Illinois was very quiet, with no wells of sufficient importance to get into the record.

Michigan slacked up with only 16 new oil wells in the six months along with 23 dry holes and 10 gas wells. The Muskegon Field is a back number and the Mount Pleasant Field was not developed much because of general low price conditions. New wells were brought in in Isabella, Midland, Oceana and Munroe Counties, with the bulk of the work in Isabella County. Twenty old wells were abandoned in the Muskegon area.

Four dry holes were drilled in Missouri, which summed up operations in that State.

Following is a summary for the whole Central West area:

CENTRAL WEST FIELDS
Summary of Completed Wells First Six Months 1931

Field—	Comp.	Prod.	Dry	Gas	Abd.
Lima	70	453	15	41	358
Central Ohio	286	1,698	85	142	0
Indiana	89	1,075	42	24	44
Illinois	26	69	16	1	78
Michigan	49	2,902	23	10	16
Missouri	3	0	3	0	0
First half '31	523	6,197	185	218	496
First half '30	1,048	29,661	319	285	282
Difference	525	23,464	134	67	214

LIMA FIELD
Summary of Completed Wells First Six Months 1931
Completions by Month

Month—	Comp.	Prod.	Dry	Gas	Abd.
January	17	21	2	10	26
February	13	5	4	8	62
March	11	135	2	8	104
April	9	160	1	6	71
May	10	107	2	5	33
June	10	25	4	4	62
First half '31	70	453	15	41	358
First half '30	99	846	24	20	147
Difference	29	393	9	21	211

LIMA FIELD
Completions by District

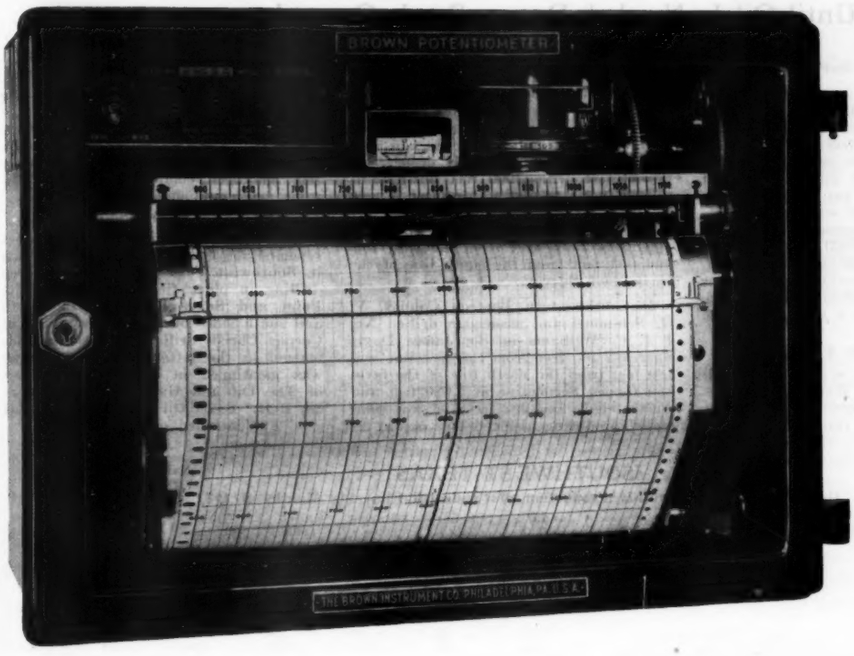
County—	Comp.	Prod.	Dry	Gas	Abd.
Wood	0	0	0	0	189
Hancock	1	70	0	0	34
Allen	0	0	0	0	17
Auglaize	2	2	1	0	3
Sandusky	1	0	1	0	83
Mercer	2	1	0	1	16
Lucas	2	22	1	0	8
Ottawa	1	2	0	0	5
Seneca	22	5	4	17	1
Wyandot	8	0	4	4	1
Hardin	21	346	3	11	0
Shelby	2	5	0	1	0
Fulton	1	0	0	1	0
Huron	1	0	0	1	0
Darke	0	0	0	0	1
Crawford	1	0	1	0	0
Henry	5	0	0	5	0
First half '31	70	453	15	41	358

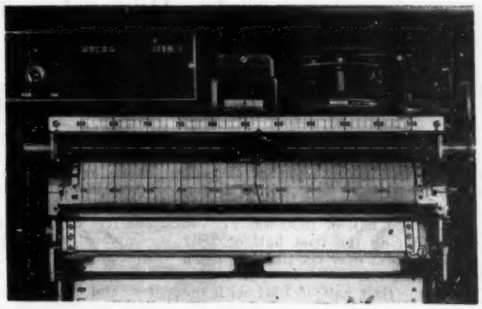
CENTRAL OHIO
Completions by Month

Month—	Comp.	Prod.	Dry	Gas	Oil
January	54	220	17	23	14
February	83	601	25	39	19
March	30	290	7	16	7
April	31	26	11	15	5
May	49	359	10	31	8
June	39	202	15	18	6
First half '31	286	1,698	85	142	59
First half '30	582	9,178	158	234	190
Difference	296	7,480	73	92	131

(Continued on Page 130)

For Closer Cuts





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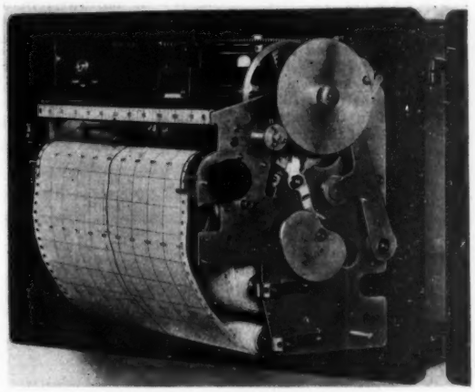

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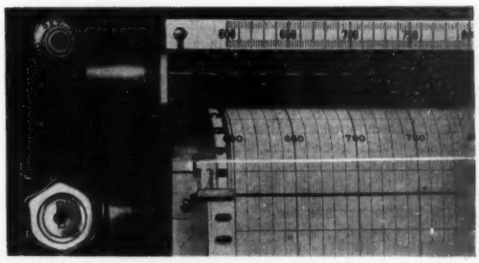

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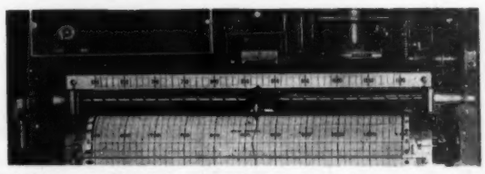

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New Pools Opened in Southwest Texas

Numerous Important Discoveries in First Half of Year Lie Undeveloped Until Oil Is Needed. Deeper Sands Opened

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

East Texas took the play away from Southwest Texas during the first half of 1931. There are fewer operations listed than at any time in many months and a big percentage of those listed are shut down and many reported as completions should have been drilled deeper. Initial production of oil wells completed during the first half of 1930 was 272,745 bbls. and during the first half of 1931 only 42,183 bbls., over six times as much in 1930 as in 1931.

During the first half of 1931 with the exception of a little drilling in the Escobas-Muckelroy Pool there has been very little drilling in proven areas and operations have been largely wildcat. There were over 50 producers completed in the Escobas-Muckelroy Pool during the first six months, about 25 in the Chapman Pool in Williamson and a few finishing up tests in the Pettus Field.

In spite of the slackened drilling, however, the first half of 1931 has made a better record in the matter of finding new pools than did the first half of 1930. There were a number of important discoveries the first half of this year where there were almost none during the first half of 1930. There has also been considerable drilling in search for deeper sands in the Cartwright or Mount Lucas Field in southeastern Live Oak County, in the Saxet Field on the south side of Nueces Bay or Corpus Christi and in the White Point Field on the north side of that bay and deep production was found at the Agua Dulce Field in western Nueces County. No development program of any important size has started around any of the new discoveries.

New Year's Gift

T. B. Slick estate's No. 1 Poetter in Goliad County near the DeWitt County line and 25 miles northeast of the Pettus Field, came in over the New Year's holidays. It was in the first day of January at a total depth 4,212 feet a 500-bbl. well and since then two other tests have been drilled. The No. 1 Allen came in a producer at 4,238 feet for 100 bbls. and No. 1 Reidel abandoned dry at 4,574 feet. The two producers are shut in and have been since their completion.

No. 1 Poetter is located in the Obid Marshall Survey, 1,500 feet from the southwest line and 900 feet from the southeast line of the 591-acre farm. It was carried in some reports as Slick's No. 1 Taylor and as Slick & Russell's No. 1 Taylor. It topped the Jackson formation at 3,080 feet and had sand from 4,190-4,212 feet and set casing at 4,194 feet.

Evans & Gant's No. 1 Love in southwestern Kerr County is another well that came in during the last days of 1930 and the first days of 1931, but the completion should be credited to 1931. It is located in J. Martines Survey No. 1,594 and is located 660 feet south of the southernmost of the north lines of that survey and 1,320 feet from the west line of the survey. Due to stretching of the cable the depth is not very accurately reported but was carried generally as 3,391 feet where it got the second sand carrying oil and pumped about 6 or 7 bbls. of oil with considerable water. It also had a sand at 2,552 feet that was good for a few barrels a day and after having been on the pump from early in January till late in June it has started deepening and at 3,500 to 3,540 feet had another sand that was estimated to be good for about 8 bbls. of oil a day. Quite a number of tests are now drilling within a radius of 5 miles from it.

In San Patricio County the Aransas Oil Corp.'s No. 1 Welder was drilled at a point about halfway between the White Point Field on the south and the Refugio Field on the north. The footage is 390 feet from the west line and 5,267 feet from the south line of the Portillo Survey, a little north of the town of Sinton. At 3,634 feet it had 1,600 pounds gas pressure on quarter-inch choke on tubing and was estimated at 50,000,000 feet of dry gas. After encountering the gas the test was drilled to 3,698 feet and then plugged back and was completed April 29, 1931, and has been shut in since. As this was being written plans were on foot to drill another test and Jacob Buzzini and Pickett were building a derrick for a test a half mile south of it.

In Jim Wells County

Carsil Oil & Gas Co.'s No. 1 McGill in northwestern Jim Wells County was plugged and abandoned at 2,690 feet April 9, after it had run wild as a gas well for about two days. It was feared that unless it was thoroughly plugged water might get into the sand, as while running wild it had thrown out considerable sand and drilled itself deeper. A second test drilled 900 feet north of it missed that pay and a third test is now being drilled, 450 feet south and 350 feet east of the No. 1. Location of No. 1 McGill is 1,665 feet from the west line and 654 feet from the south line of the D. Baldwin Survey.

In southwestern Bastrop County, V. G. Schimmel and associates drilled No. 1 J. C. Williams in the James Doyle Survey 2,200 feet from the east line and 180 feet from the north line of the farm and topped Serpentine at 1,680 feet and Austin chalk at 1,997 feet and was completed producing about 6 bbls. a day in the Serpentine. The new Serpentine plug is about 2 miles southwest of the Yoast Field which also produces from Serpentine. No. 1 J. C. Williams was completed May 20 and since then one other test has been completed at about the same depth and making a small well.

Find Deeper Sands

Next in line with the new discoveries reported above the most important events in Southwest Texas concerned the deep drilling in older fields. In the White Point and Saxet Fields on the north and south sides of Nueces Bay, west of Corpus Christi drilling for deeper sands started in the latter part of 1930 and was mentioned in the annual number of The Oil and Gas Journal, January 29, 1931. Saxet Oil Co.'s No. 17 Rachel

(Continued on Page 171)

SOUTHWEST TEXAS

Daily Average and Monthly Production of Crude Oil First Six Months of 1931

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Total 6 mos. (bbls.)
AGUA DULCE:							
Daily average	26	18	6	35	49	80	
Month	807	504	189	1,050	1,516	2,390	6,456
BEXAR COUNTY:							
Daily average	304	351	347	387	330	263	
Month	9,432	9,828	10,752	11,613	10,229	7,894	59,748
BRANYON:							
Daily average	23	29	27	24	27	26	
Month	720	812	837	717	830	771	4,687
BRUNER:							
Daily average	14,402	15,932	14,222	12,213	12,453	11,964	
Month	446,454	446,096	440,893	366,391	386,045	358,912	2,444,791
BUCHANAN:							
Daily average	109	118	116	87	236	86	
Month	3,374	3,304	3,595	2,615	7,318	2,585	22,791
CHAPMAN:							
Daily average	5,392	3,902	4,383	3,585	3,306	3,078	
Month	167,145	109,256	135,884	107,544	102,489	92,331	714,649
DALE:							
Daily average	268	271	303	289	236	239	
Month	8,303	7,588	9,390	8,675	7,320	7,177	48,453
DARST CREEK:							
Daily average	31,716	30,676	21,278	24,704	19,771	20,075	
Month	983,213	858,928	659,615	741,116	612,903	602,242	4,458,017
GOLIAD COUNTY:							
Daily average	65	53	55	23	.....	.....	
Month	2,009	1,484	1,704	689	.....	.....	5,886
KINGSVILLE:							
Daily average	119	106	119	122	116	112	
Month	3,689	2,968	3,691	3,660	3,592	3,354	20,954
LARREMORE:							
Daily average	15	16	22	22	88	21	
Month	465	448	681	664	2,727	622	5,607
LULING:							
Daily average	9,283	9,360	8,751	8,471	6,996	8,250	
Month	287,789	262,080	271,284	254,132	216,879	247,502	1,539,666
LYTTON SPRINGS:							
Daily average	734	443	722	690	697	702	
Month	22,746	12,404	22,382	20,694	21,607	21,076	120,909
MANFORD:							
Daily average	169	167	146	132	143	140	
Month	5,225	4,676	4,532	3,964	4,433	4,201	27,031
McMULLEN COUNTY:							
Daily average	26	20	20	20	16	20	
Month	815	560	620	600	495	596	3,686
MEDINA COUNTY:							
Daily average	22	22	22	22	22	22	
Month	678	616	683	660	681	656	3,974
MINERVA:							
Daily average	353	347	378	423	385	375	
Month	10,936	9,716	11,725	12,689	11,933	11,238	68,237
MIRANDO DISTRICT:							
Daily average	14,093	13,455	13,366	13,397	12,627	12,280	
Month	436,872	376,740	414,340	401,907	391,432	368,404	2,389,695
NORMANA:							
Daily average	26	28	.....	.....	.....	.....	
Month	799	784	.....	.....	.....	.....	1,583
NORTH PETTUS:							
Daily average	223	285	.....	.....	.....	.....	
Month	6,906	7,980	.....	.....	.....	.....	14,886
PETTUS:							
Daily average	7,829	6,854	5,836	7,297	7,172	6,773	
Month	242,710	191,912	180,922	218,918	222,343	203,188	1,259,993
SAXET:							
Daily average	85	166	168	242	310	662	
Month	2,654	4,648	5,199	7,255	9,611	19,876	49,243
SOMERSET:							
Daily average	1,340	1,357	1,337	1,269	1,195	1,193	
Month	41,530	37,996	41,450	38,067	37,046	35,782	231,871
S.R.C.-VACUUM:							
Daily average	169	119	.....	.....	.....	.....	
Month	5,253	3,332	.....	.....	.....	.....	8,585
THRALL:							
Daily average	36	34	35	35	35	34	
Month	1,115	952	1,083	1,050	1,085	1,026	6,311
WHITE POINT:							
Daily average	20	25	40	47	44	44	
Month	603	700	1,240	1,412	1,367	1,297	6,624
YOAST:							
Daily average	215	228	253	183	180	247	
Month	6,670	6,384	7,843	5,489	5,577	7,426	39,389
Daily average	87,042	84,382	71,952	73,719	66,424	66,685	74,937
Total first six months 1931	2,698,316	2,362,696	2,230,534	2,211,571	2,059,458	2,000,846	13,563,721
Total first six months 1930	1,981,174	1,813,895	1,977,584	1,893,330	2,185,405	2,421,341	12,275,729
Total first six months 1929	1,453,427	1,527,677	2,021,412	2,199,207	2,413,599	2,424,277	12,039,599
Total first six months 1928	825,036	789,190	839,945	807,553	804,627	774,570	4,840,921
Total first six months 1927	1,245,673	1,075,312	1,167,584	1,112,760	1,092,333	1,020,180	6,713,732
Total first six months 1926	1,253,397	1,100,720	1,220,842	1,176,630	1,208,163	1,062,020	7,101,772

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THIS U-bend is made from 12" extra heavy seamless steel pipe. The center-to-center distance is 5'-1½" which means the bending radius is only 30¾". If you will consult the various tables giving radii of bends, you will find the *minimum* radius possible for this size and weight of pipe is from 17% to 62% *more* than the radius Midwest used. Note the uniformity of this bend and that it is free from buckles.

This is typical of "The Greater Midwest Piping Service." Midwest is unhampered by the traditions of pipe fabrication and has made many improvements in piping practices.

When space limitations make it necessary to use bends with extremely short radii—and when you require piping that presents other difficulties in fabrication, call on Midwest. The advantages of using this highly skilled organization and these most modern facilities for the coils, bends and welded headers required for ordinary service are also obvious.

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THE GREATER MIDWEST PIPING SERVICE

Crude Oil Price Changes First Six Months 1931

MIDDLE WESTERN STATES

	Jan. 1	Jan. 15	Mar. 6	Apr. 1	June 1	June 2
Lima	1.10	....	.90	....	....	.70
Wooster	1.40	....	.99	....	....	.72
Illinois	1.30	....	.80	....	....	.55
Indiana	.87	....	.50	....	....	.35
Princeton	1.20	....	.80	....	....	.55
Western Kentucky	1.15	....	.75	....	....	.50
Posted by Ohio Oil Co.						
Michigan—						
Dundee	....	....	....	....	....	....
Upper and Lower Traverse sands	....	....	....	....	....	....
Posted by Standard Oil Co. of Indiana for boat shipment same as Mid-Continent gravity scale.						
Midland	1.10	....	.75	....	.52	....
Posted by Pure Oil Co.						
Cumberland	.85	....	....	....	....	....
Posted by Paragon Development Co.						
			Mar. 7			
Oil City (Ky.)	1.10	.80	.70	.60	....	....
Posted by Stoll Oil Refining Co.						

ROCKY MOUNTAIN FIELDS

Salt Creek—	Jan. 1	Mar. 5	Apr. 21	June 1	June 2	June 3
29 to 29.9	.69	.45	....	.26	....	....
30 to 30.9	.73	.47	....	.27	....	....
31 to 31.9	.77	.49	....	.28	....	....
32 to 32.9	.81	.51	....	.29	....	....
33 to 33.9	.85	.53	....	.30	....	....
34 to 34.9	.89	.55	....	.31	....	....
35 to 35.9	.92	.57	....	.33	....	....
36 to 36.9	.95	.59	....	.33	....	....
37 and above	.98	.61	....	.34	....	....
Rock Creek (Wyo.)	1.01	.66	....	....	.45	....
Big Muddy	1.00	.65	....	....	.40	....
Mule Creek	1.20	....	....	....	....	....
Grass Creek, light	1.25	.90	....	....	.62	....
Grass Creek, heavy	.90	....	....	....	.62	....
Fort Collins	....	....	....	....	.30	....
Elk Basin	1.25	.90	....	....	.62	....
Lance Creek	1.35	.98	....	....	.75	....
Poison Spider	1.00	.70	....	....	....	....
Rex Lake	1.10	....	....	....	....	....
Lost Soldier	.80	.55	....	....	....	....
Cat Creek (Mont.)	1.25	....	....	....	....	.60
Sunburst	1.55	....	....	....	....	.85
Artesia (N. Mex.)	.75	.40	32½	....	....	.25
Hogback	1.40	....	....	....	....	.65
Florence	....	....	....	....	.27	....
Iles—		Mar. 7				
33 gravity and above	.87	.72	....	....	....	....
Below 33 gravity	.65	.50	....	....	....	....
Lea County (see gravity table)	....	....	....	....	....	.25
Wellington	....	....	....	....	.35	....
Dutton Creek	....	....	....	....	1.01	....
Frannie, light	....	....	....	....	.35	....
Frannie, heavy	....	....	....	....	.25	....
Hudson	.76	....	....	....	.65	....
Lander	....	.40	....	....	....	....
Border (Mont.)	....	....	....	....	....	1.55

Note—Salt Creek, Cat Creek, Hudson, Greybull and Hogback posted by Midwest Refining Co. and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard and Florence posted by the Continental Oil Co. Osage posted by Arro Oil & Refining Co.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Darst Creek—Posted by Humble Oil & Refining Co., Texas Pipe Line Co. and Magnolia Petroleum Co.; January 1 at 90 cents; April 21 at 53 cents; June 3 at 37 cents.

Thrall—Magnolia Petroleum Co. posts same price as corresponding grade Mid-Continent crude less 19½ cents per cwt. freight.

	Jan. 1	Jan. 14	Feb. 10	Mar. 10	Mar. 26	Apr. 21	Apr. 23	June 3
Luling	.75	....	....	.45	....	....	.38	.22
Rusk	....	....	.40	....	....	....	....	....
Mirando	.75	.69	....	....	....	.60	....	.44
Corsicana, heavy	.75	....	....	.45	....	....	.38	.22
Salt Flat	.90	....	....	....	....	.53	....	.37
Pettus	1.10	....	....	....	....	.75	....	.50
East Texas	....	....	....	....	....	(*)	....	....
Dobrowolski	See Mid-Continent gravity table							
Lytton Springs	See Mid-Continent gravity table							
Somerset	See Mid-Continent gravity table							

*March 26, East Texas crude placed on same gravity price schedule as Mid-Continent crude. Posting made by Magnolia followed by Humble April 21. On May 26, Humble, Gulf, Sinclair and The Texas Company posted crude below 35 gravity at 25 cents; 35 gravity at 27 cents with 2-cent differential to 40 gravity at 37 cents. Humble withdrew postings June 2. On June 24, Gulf, Stanolind and Sinclair posted flat price of 20 cents.

Note—Luling and Corsicana heavy posted by the Magnolia Petroleum Co. and Grayburg Pipe Line Co. Mirando (Webb, Jim Hogg and Zapata Counties) by Texpata Pipe Line Co., Magnolia Pipe Line Co., Humble Oil & Refining Co. and Crown Central Pipe Line Co. Somerset posted by Grayburg Pipe Line Co., Pioneer Oil Refining Co. and Witherspoon Refining Co.

EASTERN STATES

	Jan. 1	Mar. 11	Apr. 23	Apr. 26	June 3
Pennsylvania grade oil in National Transit Lines (Pa.)	1.85	....	1.75	....	1.50
Pennsylvania grade oil in Southwest Pennsylvania Line (W. Va.)	1.80	....	1.70	1.40	1.35
Pennsylvania grade oil in Eureka Lines (Pa.)	1.70	....	1.50	....	1.35
Pennsylvania grade oil in Buckeye Lines (Ohio)	1.45	....	1.25	....	1.00
Corning grade oil in Buckeye Lines (Ohio) 25-cent grade	1.15	.80	....	....	.65
Cabin Creek, W. Va.	1.70	....	....	....	....
Bradford Hollow, W. Va.	1.70	....	....	....	....
Ragland grade oil in Cumberland Lines (Ky)	1.10	....	....	....	.60
Wayne district in Cumberland Pipe Lines	1.17	....	....	....	....
Bradford district (Tide Water Pipe Line Co.)	2.15	....	2.00	....	1.75
Allegany district (Tide Water Pipe Line Co.)	2.15	....	2.00	....	1.75

Posted by Joseph Seep Purchasing Agency except in Bradford and Allegany Fields where postings are made by Tide Water Pipe Line Co.

CANADIAN FIELDS

	Jan. 1	Mar. 1	June 4
Oil Springs	1.57	....	1.62
Petrolia	1.50	....	....
Alberta, Canada—			
50 gr. and above	....	2.36	....
Below 50 gr.	....	1.87	....

Posted by Imperial Oil Co., Ltd. and Regal Oil Co.

MEXICAN CRUDES

Panuco heavy, f.o.b. Tampico	Jan.	Feb.	Mar.	Apr.	May	June
	.56	...	.46	.46	.44	...

Note—Prices based on transactions for previous month.

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL AND SOUTHWEST TEXAS

	Jan. 1	Jan. 14	Mar. 5*	Apr. 21†	June 1
Below 29	.65	See note	.43	....	.25
29 to 29.9	.69		.46	....	.26
30 to 30.9	.73	....	.47	....	.27
31 to 31.9	.77	....	.49	....	.28
32 to 32.9	.81	....	.51	....	.29
33 to 33.9	.85	....	.53	....	.30
34 to 34.9	.89	....	.55	....	.31
35 to 35.9	.92	....	.57	....	.32
36 to 36.9	.95	....	.59	....	.33
37 to 37.9	.98	....	.61	....	.34
38 to 38.9	1.01	....	.62	....	.35
39 to 39.9	1.04	....	.65	....	.36
40 and above	1.07	....	.67	....	.37

*Magnolia adopted same schedule March 5, except posts 26 gravity, 40 cents; 26-26.9, 41 cents; 27-27.9, 42 cents; 28-28.9, 43 cents. Sinclair met Stanolind schedule March 6; Carter, The Texas Company, Humble, Gypsy and Gulf on March 10.

†Humble on April 21 reduced Ranger, North Texas and Moran crudes 10 cents below Mid-Continent scale for corresponding gravities.

Posted by Stanolind Crude Oil Purchasing Co., The Texas Company and Sinclair Crude Oil Purchasing Co., includes Oklahoma, Kansas and North Texas. Magnolia Petroleum Co. includes Oklahoma, Kansas, North Texas, Panola County in East Texas, Lytton Springs and Somerset in Southwest Texas. Humble Oil & Refining Co. includes North Texas, Ranger, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona, Lytton Springs and Corsicana light. Postings by Carter Oil Co. and Gypsy Oil Co. include Oklahoma and Kansas.

Note—January 14, Humble posted separate prices for group of counties in North Texas around Wichita Falls including Wichita, Wilbarger, Archer and northern Young Counties. The prices follow: Below 29 gravity, 55 cents; 29-29.9 gravity, 57 cents with 2-cent differential per degree to 40 gravity and above at 79 cents. Met by The Texas Company and Magnolia June 15 and Stanolind on June 16.

ARKANSAS—NORTH LOUISIANA

Caddo, Bull Bayou, Cotton Valley, Sarepta-Carterville, Rainbow, Crichton, De Soto, Haynesville, Homer (La.), and El Dorado, Ark.—

Gravity—	Jan. 1	Nov. 10	June 2
Below 28	.65	.43	.25
28 to 28.9	.65	.43	.26
29 to 29.9	.69	.45	.26
30 to 30.9	.73	.47	.27
31 to 31.9	.77	.49	.28
32 to 32.9	.81	.51	.29
33 to 33.9	.85	.53	.30
34 to 34.9	.89	.55	.31
35 to 35.9	.92	.57	.32
36 to 36.9	.95	.59	.33
37 to 37.9	.98	.61	.34
38 to 38.9	1.01	.63	.35
39 to 39.9	1.04	.65	.36
40 and above	1.07	.67	.37

Posted by Magnolia Petroleum Co., to include Pine Island in (Caddo), Haynesville, Bull Bayou and El Dorado. Standard Oil Co. of Louisiana; Gulf Refining Co., all fields; Atlantic Oil Producing Co., in Homer, Haynesville and West El Dorado; The Texas Company, in Caddo, Bull Bayou and Crichton; Louisiana Oil Refining Corp., all fields.

Stephens—	Jan. 1	June 3
Below 28.9	.54	.20
29 to 29.9	.58	.20
30 to 30.9	.62	.20
31 to 31.9	.66	.20
32 and above	.70	.20

Posted by Atlantic Oil Refining Co. and Louisiana Oil Refining Corp.

Smackover—	Jan. 1	Mar. 10	June 2	June 3
Below 24	.70	.45	.37	(*)
Above 24	.70	.45	.37	....

*On June 2 The Texas Company posted 37 cents met by Gulf on June 3. On June 3 Standard of Louisiana and Magnolia posted 25 cents.

Posted by Standard Oil Co., The Texas Company, Gulf Refining Co., Atlantic Oil Producing Co., Louisiana Oil Refining Corp. and Magnolia Petroleum Co.

	Jan. 1	June 3
Bellevue	1.00	.25
Urania	.75	.30
East El Dorado	.70	.25

Cotton Valley—Posted by Standard Oil Co. of Louisiana, Magnolia Petroleum Co. and Louisiana Oil Refining Corp.

Bellevue—Posted by Standard Oil Co. of Louisiana, Gulf Refining Co. and Louisiana Oil Refining Corp.

Calion (East El Dorado)—Posted by Gulf Refining Co.

GULF COAST

Jennings and Sorrento—Posted by Gulf Refining Co. of Louisiana. Price January 1, 80 cents; April 21 at 75 cents; June 3 at 40 cents.

High Island—Posted by Gulf Pipe Line Co. Price January 1, 75 cents; April 21 at 65 cents; June 3 at 40 cents.

Markham—Posted by The Texas Company. Price January 1, 85 cents; January 15, 69 cents; January 14 at 50 cents; June 2 at 37 cents.

Refugio, heavy—Posted by Humble Oil & Refining Co. Price January 1, 75 cents flat; January 14 at 69 cents; June 3 at 44 cents.

	Jan. 1	Jan. 14	Apr. 21	June 1
Grade A	1.00	.80	.70	*.60

Posted by Humble Oil & Refining Co. and Vacuum Oil Co.

*Posted by Vacuum.

(Grade A & B classification discontinued.)

Gulf Coast Grade B and Refugio light—

	*Jan. 1	Jan. 14	Apr. 21	†June 2
Below 25	.75	.69	.60	.44
25 to 25.9	.92	.71	.61	.45
26 to 26.9	.94	.73	.63	.46
27 to 27.9	.96	.75	.65	.47
28 to 28.9	.98	.77	.67	.48
29 to 29.9	1.00	.79	.69	.49
30 to 30.9	1.02	.81	.71	.50
31 to 31.9	1.04	.83	.73	.51
32 to 32.9	1.06	.85	.75	.52
33 to 33.9	1.08	.87	.77	.53
34 to 34.9	1.10	.89	.79	.54
35 to 35.9	1.12	.91	.81	.55
36 to 36.9	1.14	.93	....	.56
37 to 37.9	1.16	.95	....	.57
38 to 38.9	1.18	.97	....	.58
39 to 39.9	1.20	.99	....	.59
40 and above	1.22	1.01	....	.60

*Humble was paying 75 cents for Grade B below 25 degrees and 92 cents for 25-25.9 gravity with a 2-cent differential for each degree upward to 40 degrees and above at $1.32. Gulf Refining Co. of Louisiana, The Texas Company and Gulf Pipe Line Co. of Texas were paying as follows for Grade B: Below 25 degrees, 69 cents; 25-25.9 degrees, 71 cents, with a 2-cent differential for each degree upward to and including 40 degrees and above at $1.01.

†Posted June 2 by The Texas Company. On June 3 Gulf, Humble and others posted top price of 55 cents for oil above 35 gravity.

WEST TEXAS

Crane, Upton, Ector, Crockett, Howard, Glasscock, Mitchell, Texas, and Lea, New Mexico—

Gravity—	Jan. 1	Mar. 10	Apr. 21*	June 3
Below 25	.50	.35	.30	.25
25 to 25.9	.52	.35	.30	.25
26 to 26.9	.54	.35	.30	.25
27 to 27.9	.56	.35	.30	.25
28 to 28.9	.58	.35	.30	.25
29 to 29.9	.60	.35	.30	.25
30 to 30.9	.62	.35	.30	.25
31 to 31.9	.64	.35	.30	.25
32 to 32.9	.66	.35	.30	.25
33 to 33.9	.68	.35	.30	.25
34 to 34.9	.70	.35	.30	.25
35 to 35.9	.72	.35	.30	.25
36 and above	.74	.35	.30	.25

Posted by Humble Oil & Refining Co., Kay County Gas Co., Gulf Refining Co. and Magnolia Petroleum Co.

*April 21, Humble and other buyers posted Lea, New Mexico, crude at 32½ cents flat; on June 3 at 25 cents.

Pecos and Winkler—

Gravity—	Jan. 1	Mar. 10	Apr. 21	June 3
Below 25	.55	.40	.35	.25
25 to 25.9	.57	.40	.35	.25
26 to 26.9	.59	.40	.35	.25
27 to 27.9	.61	.40	.35	.25
28 to 28.9	.63	.40	.35	.25
29 to 29.9	.65	.40	.35	.25
30 to 30.9	.67	.40	.35	.25
31 to 31.9	.69	.40	.35	.25
32 to 32.9	.71	.40	.35	.25
33 to 33.9	.73	.40	.35	.25
34 to 34.9	.75	.40	.35	.25
35 to 35.9	.77	.40	.35	.25
36 and above	.79	.40	.35	.25

Posted by Humble Oil & Refining Co.

TEXAS PANHANDLE

Gray County—	Jan. 1	Jan. 14	Mar. 10	Apr. 21	June 3
Below 29	.50	.48	....	....	....
29 to 29.9	.54	.50	....	....	....
30 to 30.9	.58	.52	....	....	....
31 to 31.9	.62	.54	....	....	....
32 to 32.9	.66	.56	....	....	....
33 to 33.9	.70	.58	....	....	....
34 to 34.9	.74	.60	.43	.33	.24
35 to 35.9	.77	.62	.45	.35	.25
36 to 36.9	.80	.64	.47	.37	.26
37 to 37.9	.83	.66	.49	.39	.27
38 to 38.9	.86	.68	.51	.41	.28
39 to 39.9	.89	.70	.53	.43	.29
40 and above	.92	.72	.55	.45	.30

Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co.

Carson, Hutchinson and Wheeler Counties—

	Jan. 1	Jan. 14	Mar. 10	Apr. 21	June 3
Below 29	.45	.43	....	....	....
29 to 29.9	.49	.45	....	....	....
30 to 30.9	.53	.47	....	....	....
31 to 31.9	.57	.49	....	....	....
32 to 32.9	.61	.51	....	....	....
33 to 33.9	.65	.53	....	....	....
34 to 34.9	.69	.55	.38	.30	.21
35 to 35.9	.72	.57	.40	.32	.22
36 to 36.9	.75	.59	.42	.34	.23
37 to 37.9	.78	.61	.44	.36	.24
38 to 38.9	.81	.63	.46	.38	.25
39 to 39.9	.84	.65	.48	.40	.26
40 and above	.87	.67	.50	.42	.27

Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co.

	Jan. 1
Chalk	.75

Posted by Magnolia Petroleum Co.

CALIFORNIA CRUDE OIL PRICES

Gravity—	Signal Hill Jan. 1	Mar. 20	Mar. 31	June 19	Alamitos Heights, Seal Beach Jan. 1	Mar. 20	Mar. 31	June 19	Huntington Beach Jan. 1	Mar. 20	Mar. 31	June 19	Athens, Rosecrans, Dominguez Jan. 1	Mar. 20	Mar. 31
14 to 14.9	.70	.65	.65	.65	.70	.65	.65	.65	.70	.65	.65	.65	....	....	....
15 to 15.9	.70	.65	.65	.65	.70	.65	.65	.65	.70	.65	.65	.65	....	....	....
16 to 16.9	.70	.65	.65	.65	.70	.65	.65	.65	.70	.65	.65	.65	....	....	....
17 to 17.9	.70	.65	.65	.65	.70	.65	.65	.65	.70	.65	.65	.65	....	....	....
18 to 18.9	.76	.65	.65	.65	.76	.65	.65	.65	.76	.65	.65	.65	....	....	....
19 to 19.9	.82	.65	.65	.65	.82	.65	.65	.65	.82	.65	.65	.65	....	....	....
20 to 20.9	.88	.66	.65	.65	.88	.66	.65	.65	.88	.66	.65	.65	....	....	....
21 to 21.9	.94	.66	.62	.65	.94	.66	.62	.65	.94	.66	.62	.65	....	....	....
22 to 22.9	1.00	.66	.59	.65	1.00	.66	.59	.65	1.00	.66	.59	.66	....	....	....
23 to 23.9	1.07	.66	.56	.67	1.07	.66	.56	.67	1.07	.66	.56	.68	....	....	....
24 to 24.9	1.12	.66	.53	.69	1.12	.66	.53	.69	1.12	.66	.53	.70	1.12	.66	.53
25 to 25.9	1.17	.67	.50	.71	1.17	.67	.50	.71	1.17	.67	.50	.72	1.17	.67	.50
26 to 26.9	1.22	.67	.47	.73	1.22	.67	.47	.73	1.22	.67	.47	.74	1.22	.67	.47
27 to 27.9	1.26	.67	.44	.75	1.26	.67	.44	.75	1.26	.67	.44	.76	1.27	.67	.44
28 to 28.9	1.30	.67	.41	.77	1.30	.67	.41	....	1.30	.67	.41	....	1.32	.67	.41
29 to 29.9	1.34	.67	.38	.79	1.34	.67	.38	....	1.34	.67	.38	....	1.37	.67	.38
30 to 30.9	1.38	.68	.35	.81	1.38	.68	.35	....	1.38	.68	.35	....	1.42	.68	.35
31 to 31.9	1.43	.68	....	....	1.43	.68	....	....	1.43	.68	....	....	1.47	.68	....
32 to 32.9	1.48	.68	....	....	1.48	.68	....	....	1.48	.68	....	....	1.52	.68	....
33 to 33.9	....	....	....	....	....	....	....	....	....	....	....	....	1.57	.68	....
34 to 34.9	....	....	....	....	....	....	....	....	....	....	....	....	1.62	.68	....
35 to 35.9	....	....	....	....	....	....	....	....	....	....	....	....	1.66	.69	....
36 to 36.9	....	....	....	....	....	....	....	....	....	....	....	....	1.72	.69	....
37 to 37.9	....	....	....	....	....	....	....	....	....	....	....	....	1.78	.69	....
38 to 38.9	....	....	....	....	....	....	....	....	....	....	....	....	1.84	.69	....
39 to 39.9	....	....	....	....	....	....	....	....	....	....	....	....	1.90	.69	....
40 to 40.9	....	....	....	....	....	....	....	....	....	....	....	....	1.96	.70	....
41 to 41.9	....	....	....	....	....	....	....	....	....	....	....	....	2.02	.70	....
42 to 42.9	....	....	....	....	....	....	....	....	....	....	....	....	2.08	.70	....

Gravity—	Torrance Jan. 1	Mar. 20	Mar. 31	June 19	Santa Fe Springs Jan. 1	Mar. 20	Mar. 31	June 19
14 to 14.9	.70	.65	.65	.65	....	....	....	....
15 to 15.9	.70	.65	.65	.65	....	....	....	....
16 to 16.9	.70	.65	.65	.65	....	....	....	....
17 to 17.9	.70	.65	.65	.65	....	....	....	....
18 to 18.9	.76	.65	.65	.65	....	....	....	....
19 to 19.9	.82	.65	.65	.65	....	.65	.65	.65
20 to 20.9	.88	.66	.65	.65	....	.66	.65	.65
21 to 21.9	.94	.66	.62	.65	.92	.66	.62	.65
22 to 22.9	1.00	.66	.59	.66	.95	.66	.59	.68
23 to 23.9	1.07	.66	.56	.67	1.01	.66	.56	.71
24 to 24.9	1.12	.66	.53	.68	1.05	.66	.53	.73
25 to 25.9	1.17	.67	.50	.70	1.09	.67	.50	.75
26 to 26.9	1.22	.67	.47	....	1.13	.67	.47	.78
27 to 27.9	1.26	.67	.44	....	1.18	.67	.44	.80
28 to 28.9	1.30	.67	.41	....	1.23	.67	.41	.82
29 to 29.9	1.34	.67	.38	....	1.28	.67	.38	.85
30 to 30.9	1.38	.68	.35	....	1.33	.68	.35	.87
31 to 31.9	1.43	.68	....	....	1.38	.68	....	....
32 to 32.9	1.48	.68	....	....	1.43	.68	....	....
33 to 33.9	....	....	....	....	1.48	.68	....	....
34 to 34.9	....	....	....	....	1.53	.68	....	....
35 to 35.9	....	....	....	....	1.58	.69	....	....
36 to 36.9	....	....	....	....	1.63	.69	....	....
37 to 37.9	....	....	....	....	1.68	.69	....	....
38 to 38.9	....	....	....	....	1.73	.69	....	....
39 to 39.9	....	....	....	....	1.78	.69	....	....
40 to 40.9	....	....	....	....	....	.70	....	....
41 to 41.9	....	....	....	....	....	....	....	....
42 to 42.9	....	....	....	....	....	....	....	....

Gravity—	Playa Del Rey* † Jan. 1	Mar. 20	June 19	Richfield Jan. 1	Mar. 20	Mar. 31	June 19	Newhall, McKittrick—Kern River‡ Jan.	Mar. 20	Mar. 31	June 19	Coalinga Jan. 1	Mar. 20	Mar. 31	June 19
14 to 14.9	....	....	....	.70	.65	.65	.65	.50	.55	.50	.55	.55	.55	.50	.55
15 to 15.9	....	....	....	.70	.65	.65	.65	....	.55	.55	.55	.55	.55	.55	.55
16 to 16.9	....	....	....	.70	.65	.65	.65	....	.55	.55	.55	.55	.55	.55	.55
17 to 17.9	....	....	....	.70	.65	.65	.65	....	.55	.55	.55	.55	.55	.55	.55
18 to 18.9	....	....	....	.76	.65	.65	.65	....	.55	.55	.55	.62	.55	.55	.55
19 to 19.9	....	....	.65	.82	.65	.65	.65	....	.55	.55	.55	.70	.55	.55	.55
20 to 20.9	.74	.56	.65	.88	.66	.65	.65	....	.56	.55	....	.78	.56	.55	.55
21 to 21.9	.77	.56	.66	.94	.66	.62	.66	....	.56	.53	....	.86	.56	.53	.55
22 to 22.9	.81	.56	.67	1.00	.66	.59	.68	....	.56	.51	....	.94	.56	.51	.55
23 to 23.9	.84	.56	.68	1.07	.66	.56	.70	....	.56	.49	....	1.02	.56	.49	.55
24 to 24.9	.87	.56	.67	1.12	.66	.53	.72	....	.56	.47	....	1.04	.56	.47	.55
25 to 25.9	.90	.57	.68	1.17	.67	.50	.74	....	.57	.45	....	1.06	.57	.45	.57
26 to 26.9	....	....	....	1.22	.67	.47	....	....	.57	.42	....	1.08	.57	.43	....
27 to 27.9	....	....	....	1.26	.67	.44	....	....	.57	.41	....	1.11	.57	.41	....
28 to 28.9	....	....	....	1.30	.67	.41	....	....	.57	.39	....	1.15	.57	.39	....
29 to 29.9	....	....	....	1.34	.67	.38	....	....	.57	.37	....	1.19	.57	.37	....
30 to 30.9	....	....	....	1.38	.68	.35	....	....	.58	.35	....	1.22	.58	.35	....
31 to 31.9	....	....	....	1.43	.68	....	....	....	....	....	....	1.27	.58	....	....
32 to 32.9	....	....	....	1.48	.68	....	....	....	....	....	....	1.31	.58	....	....
33 to 33.9	....	....	....	....	....	....	....	....	....	....	....	1.35	.58	....	....
34 to 34.9	....	....	....	....	....	....	....	....	....	....	....	1.39	....	....	....
35 to 35.9	....	....	....	....	....	....	....	....	....	....	....	1.43	....	....	....

Gravity—	Lost Hills Jan. 1	Mar. 20	Mar. 31	June 19	Sunset-Midway, Elk Hills, Buena Vista Hills Jan. 1	Mar. 20	Mar. 31	June 19
14 to 14.9	.55	.55	.50	.55	.55	.55	.50	.55
15 to 15.9	.55	.55	.55	.55	.55	.55	.55	.55
16 to 16.9	.55	.55	.55	.55	.55	.55	.55	.55
17 to 17.9	.55	.55	.55	.55	.55	.55	.55	.55
18 to 18.9	.62	.55	.55	.55	.62	.55	.55	.55
19 to 19.9	.70	.56	.55	.55	.70	.55	.55	.55
20 to 20.9	.78	.56	.55	.55	.78	.56	.55	.55
21 to 21.9	.86	.56	.53	.55	.86	.56	.53	.55
22 to 22.9	.94	.56	.51	.55	.94	.56	.51	.55
23 to 23.9	1.02	.56	.49	.55	1.02	.56	.49	.58
24 to 24.9	1.06	.56	.47	.55	1.06	.56	.47	.61
25 to 25.9	1.10	.57	.45	.57	1.10	.57	.45	.64
26 to 26.9	1.14	.57	.43	.66	1.14	.57	.43	.66
27 to 27.9	1.18	.57	.41	.67	1.18	.57	.41	.68
28 to 28.9	1.23	.57	.39	.69	1.23	.57	.39	.71
29 to 29.9	1.29	.57	.37	.71	1.29	.58	.37	.74
30 to 30.9	1.35	.58	.35	.72	1.35	.58	.35	.76
31 to 31.9	1.40	.58	....	....	1.40	.58	....	....
32 to 32.9	1.47	.58	....	....	1.47	.58	....	....
33 to 33.9	1.53	.58	....	....	1.53	.58	....	....
34 to 34.9	1.59	....	....	....	1.59	....	....	....
35 to 35.9	1.65	....	....	....	1.65	....	....	....

Gravity—	Inglewood Jan. 1	Mar. 20	June 19	Olinda-Brea Canon Jan. 1	Mar. 20	Mar. 31	June 19	Kettleman Hill † Jan. 1	Mar. 20	June	Wheeler Ridge Jan. 1	Mar. 20	June 19	Montebello Jan. 1	Mar. 20	Mar. 31	June 19	Whittier, La Habra Jan. 1	Mar. 20	June 19	Santa Paula Jan. 1	Mar. 20	Mar. 31
14 to 14.9	.70	.65	.65	.70	.65	.65	.65	....	....	....	.55	.55	.55	.70	.65	.65	.65	.70	.65	.65	....	.65	.60
15 to 15.9	.70	.65	.65	.70	.65	.65	.65	....	....	....	.55	.55	.55	.70	.65	.65	.65	.70	.65	.65	....	.65	.60
16 to 16.9	.70	.65	.65	.70	.65	.65	.65	....	....	....	.55	.55	.55	.70	.65	.65	.65	.70	.65	.65	....	.65	.60
17 to 17.9	.70	.65	.65	.70	.65	.65	.65	....	....	....	.55	.55	.55	.70	.65	.65	.65	.70	.65	.65	....	.65	.60
18 to 18.9	.76	.65	.65	.76	.65	.65	.65	....	....	....	.62	.55	.55	.71	.65	.65	.65	.76	.65	.65	....	.65	.60
19 to 19.9	.82	.65	.65	.82	.65	.65	.65	....	....	....	.70	.55	.55	.77	.65	.65	.65	.82	.65	.65	....	.65	.60
20 to 20.9	.88	.66	.66	.88	.66	.65	.66	....	....	....	.78	.56	.55	.32	.66	.65	.65	.87	.66	.65	....	.65	.58
21 to 21.9	.94	.66	.68	.94	.66	.62	.67	....	....	....	.86	.56	.55	.90	.66	.62	.65	.93	.66	.65	....	.65	.56
22 to 22.9	1.00	.66	.70	1.00	.66	.59	.68	....	....	....	.94	.56	.55	.97	.66	.59	.65	.98	.66	.65	....	.65	.53
23 to 23.9	1.07	.66	.72	1.07	.66	.56	.70	....	....	....	1.02	.56	.55	1.05	.66	.56	.65	1.04	.66	....	....	.65	.50
24 to 24.9	1.12	.66	.74	1.12	.66	.53	.72	....	....	....	1.04	.56	.55	1.08	.66	.53	.65	1.08	.66	....	....	.66	.47
25 to 25.9	1.17	.67	.76	1.17	.67	.50	.74	....	....	....	1.06	.57	.55	1.11	.67	.50	.65	1.12	.67	....	....	.66	.44
26 to 26.9	1.22	.67	....	1.22	.67	.47	.76	....	....	....	1.08	.57	....	1.15	.67	.47	....	1.16	.67	....	....	.66	.41
27 to 27.9	1.26	.67	....	1.26	.67	.44	.78	....	....	....	1.10	.57	....	1.19	.67	.44	....	1.21	.67	....	....	.66	.38
28 to 28.9	1.30	.67	....	1.30	.67	.41	.80	....	....	....	....	....	....	1.23	.67	.41	....	1.25	.67	....	....	.66	.35
29 to 29.9	1.34	.67	....	1.34	.67	.38	....	....	....	....	....	....	....	1.26	.67	.38	....	1.29	.67	....	....	.66	....
30 to 30.9	1.38	.68	....	1.38	.68	.35	....	....	.58	.66	....	....	....	1.29	.68	.35	....	1.33	.68	....	....	.67	....
31 to 31.9	1.43	.68	....	1.43	.68	....	....	....	.58	.66	....	....	....	....	....	....	....	....	....	....	....	.67	....
32 to 32.9	1.48	.68	....	1.48	.68	....	....	....	.58	.66	....	....	....	....	....	....	....	....	....	....	....	.67	....
33 to 33.9	....	....	....	....	....	....	....	....	.58	.66	....	....	....	....	....	....	....	....	....	....	....	.67	....
34 to 34.9	....	....	....	....	....	....	....	....	.58	.66	....	....	....	....	....	....	....	....	....	....	....	....	....
35 to 35.9	....	....	....	....	....	....	....	....	.59	.66	....	....	....	....	....	....	....	....	....	....	....	....	....
36 to 36.9	....	....	....	....	....	....	....	....	.59	.66	....	....	....	....	....	....	....	....	....	....	....	....	....
37 to 37.9	....	....	....	....	....	....	....	....	.59	.66	....	....	....	....	....	....	....	....	....	....	....	....	....
38 to 38.9	....	....	....	....	....	....	....	....	.59	.66	....	....	....	....	....	....	....	....	....	....	....	....	....
39 to 39.9	....	....	....	....	....	....	....	....	.59	.66	....	....	....	....	....	....	....	....	....	....	....	....	....
40 to 40.9	....	....	....	....	....	....	....	....	.60	.66	....	....	....	....	....	....	....	....	....	....	....	....	....

Postings by Standard Oil Co. of California and the Union Oil Co.

Note.—On March 10 Union Oil Co. posted lower prices in fields in which it purchased crude and on March 15 again reduced prices, followed by the Standard Oil Co. of California on March 20. On March 30 Union Oil Co. posted lower prices for high gravity oils than for low gravity crudes, and on March 31 this schedule was adopted by the Standard Oil Co. of California.

*Prices subject to 5-cent gathering charge in Playa Del Rey Field.

†Posting discontinued temporarily in Playa Del Rey and Kettleman Hills Fields on March 31.

‡On January 1, Kern River, Newhall-McKittrick and Fruitvale, 11 to 13.9 gravity, 50 cents.

NEW GAS FIELDS WERE EASTERN AREA FEATURE

(Continued from Page 110)

pressure wells being put down in profusion during the first months of that period. During the first six months of 1931 this program was greatly curtailed, the Bradford Field completing only 87 wells and the Allegany Field 25 wells as compared with 1,247 and 172 wells, respectively, in the first half of 1930.

In other areas of the Eastern Field drilling was also greatly curtailed. The new Tioga-Wayne gas field showed the only increase in drilling and not one barrel of oil was added to production by the 99 wells completed there. In the West Virginia area the search was also principally for gas with nearly as many wells being drilled in the six-month period but oil production was 1,171 bbls. less.

A summarized comparison of the nine oil areas in the Eastern Field for the first six months of 1931 and 1930 shows as follows:

	Comp.	Prod.	Dry	Gas
Jan.-June, 1930..	2,442	12,391	186	296
Jan.-June, 1931..	882	2,231	184	386
Difference ...	1,560	10,160	2	90

Drilling throughout the first six months of 1931 in the oil fields was confined to tested areas.

In all areas drilling programs were curtailed more and more as the price of oil declined and the only activity shown was in the search for gas or where contracts made it imperative to drill to fulfill leasing activities.

A field by field comparison for the six-month periods shows the following, which does not include the New York-Pennsylvania gas fields:

FIRST HALF, 1930

Field—	Comp.	Prod.	Dry	Gas
Allegany	172	485	5	1
Bradford	1,247	2,021	0	1
Venango-Clarion ...	113	111	13	30
Middle Field	22	64	1	1
Butler-Armstrong ..	58	55	14	12
S. W. Pennsylvania.	94	225	21	30
West Virginia	334	1,327	61	159
Southeast Ohio	402	8,143	71	71
Total	2,442	12,391	186	296

FIRST HALF, 1931

Allegany	25	38	1	2
Bradford	87	142	0	0
Venango-Clarion ...	41	33	5	14
Middle Field	16	40	0	0
Butler-Armstrong ..	19	11	8	4
Tioga-Wayne	99	0	33	63
S. W. Pennsylvania.	64	132	17	34
West Virginia	322	166	51	222
Southeast Ohio	209	1,669	69	47
Total	882	2,231	184	386

DAY OF CANDLES NOT PAST

Candles, the oldest lighting device, constitute an item of about 35,000,000 pounds with an average estimated value of $18,000,000 in the annual export trade of the world, says the department of commerce. Great Britain is the largest exporter of candles, and, characteristic of the world trade in that commodity, showed a decline in exports during 1930, when the total was 10,743,040 pounds. France took second place with exports of 4,404,350 pounds. Belgium was third with 3,820,572 pounds. The United States exported 1,066,354 pounds during the year.

ERNEST C. TANNER DEAD

BRADFORD, Pa., July 25.—Ernest C. Tanner, 59, an oil producer since 1912 in the Pennsylvania and Kentucky fields, died suddenly on Monday, July 20, in this city. Mr. Tanner was the controlling stockholder in the Tanner Oil Co. and one of the founders of the McKean Refining Co. which recently was merged with the Quaker State Refining Co. He had been in poor health for several years and spent the winter months in Texas. Mrs. Tanner, two sons and one daughter survive. The funeral was held Wednesday under Masonic auspices.

Half Year Imports Off 13.4 Per Cent

Fuel and Gas Oil Increase Failed to Offset Drop in Incoming Gasoline and Crude. East Texas Influence Felt

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

Stimulated by a voluntary curtailment program on the part of leading American companies operating in Venezuela, Colombia and other South American fields, import movement of crude and refined petroleum into the United States during the first six months of the current year showed a drop of 13.4 per cent from comparable figures of a year ago. Total imports of crude and all products during the first half of 1931 amounted to 42,231,000 bbls., as compared with 48,769,000 bbls. in the comparable months of 1930.

Importing companies were beset early in the year by a determined drive on the part of independents in this country for an import duty on both crude and refined products, with an embargo on such imports as an alternative. The tariff move received considerable impetus in Washington but failed to muster sufficient support for enactment into law. The agitation on the part of the independents, however, aroused considerable interest in government circles, and as a direct result of this development the leading American importing companies, including Standard of New Jersey, Gulf, Shell and Pan American, voluntarily agreed to restrict imports of both crude petroleum and refined products.

The formal agreement to cut imports, however, was soon relegated to the background in market interest by the rapid development of the flush producing areas in East Texas, and the resulting flow of cheap gasoline and other products from the East Texas area. The influence of this new field has become so pronounced in the price structure of gasoline and other products that the curtailed import movement, undertaken originally as a measure to further the cause of conservation in this country, has since developed into an economic necessity in some parts of the country, particularly in the Gulf Coast area, where South American gasoline was formerly imported in considerable quantities.

While imports of crude oil and gasoline have fallen off considerably in the first half of the current year, imports of fuel and gas oils have shown an increase, and the larger supply of fuel oil particularly has reacted against the fuel oil market in this country. Bunker fuel oil is currently quoted at East Coast refinery terminals at 80 cents per barrel, the lowest quotation in the history of the industry.

Agreement Expired

At the present time, the formal agreement among producers operating in South America to hold down their shipments into the United States is understood to have expired, and import policy for the future will remain an individual matter with the companies affected.

The present situation in domestic markets, created by overproduction in East Texas, has shelved the import question rather effectively for the moment, but in the view of oil men here has only postponed the day when definite action on the problem of oil imports will have to be taken.

Tariff Agreement

In connection with this view, the suggestion recently put forward by W. C. Teagle, president of Standard Oil Co. (New Jersey), has aroused widespread interest in oil circles. Mr. Teagle adequately summed up the arguments for and against a tariff on petroleum imports. On the side favoring a tariff, he listed the following:

1. Proration efforts, entered into voluntarily by a considerable part of the industry and involving a real sacrifice by many for the good of the nation and the industry, are offset so long as there is no limitation on imports. What is the use of curtailing domestic production 300,000 bbls. per day under the total of even one year ago if the total United States supply is not proportionately reduced?

2. Since the United States produces, and has for a long time, two-thirds of the world's oil, the domestic markets, or home consumption, should be reserved for the United States producer. With more than ample supplies it is not fair to American producers to admit the competition of foreign oil.

3. The cost of foreign produced oil with transportation charges added is enough below the cost of the domestic article as to place American producers at a disadvantage.

4. Materials and supplies purchased by United States producers are nearly all protected by tariffs; similar protection should be given to the crude and products they sell.

Other Side of Picture

Arguments against the tariff were summarized by Mr. Teagle as follows:

1. With one important exception, the companies importing crude are American, so that while the oil is produced abroad, it is an American owned product. Moreover, it is produced partly to be refined in the United States as an adjunct to business domiciled in this country.

2. For a great many years part of the United States consumption has been supplied by foreign oil, and actually today imports make up a smaller percentage of the United States total supply than in former years.

3. The quality of imported oil is inferior to the average grade of domestic crude. It is largely used for the production of fuel oil and asphalts, being low in gasoline content. Imports originally were from Mexico. With the decline there the American companies transferred activities to Colombia and Venezuela. Imports have come mostly from the latter in recent years. The oil has approximated the Mexican product in quality. Therefore, it goes largely to supply fuel and asphalt markets.

4. The consumption of fuel oil on the Eastern Seaboard is 112,500,000 bbls. per annum, of which imports supply approximately 57 per cent. Users of this fuel oil say that to make them dependent upon the domestic article would add seriously to their costs.

5. The owners of 26,000,000 motor vehicles in the United States believe that limiting competition to domestic producers would result in higher gasoline prices.

6. Shutting out South American oil would jeopardize existing friendly relations and treaty obligations.

7. Crude brought to the United States to be refined employs our labor and contributes to our taxes.

8. In the last eight years, exports of oil have greatly exceeded imports, so that the United States is a gainer on the exchange.

9. Later figures are not available, but in the three years, 1927, 1928 and 1929, the value of imports was $350,834,268, and of exports $1,572,946,825, an excess balance in this country's favor of $1,222,112,557, or at the rate of more than $400,000,000 per annum.

10. If lower cost foreign oil and products are shut out from the United States they will move directly into foreign markets now supplied from the United States. Since exports now greatly exceed imports, if this country loses its sales abroad it will mean an actual curtailment in the consumption of American crude, besides the loss in wages of those engaged in refining for export.

Comparative Figures

Illustrative of the points made by Mr. Teagle in comparing import and export figures covering oil is the following table:

	Barrels			
	Imports		Exports	
Year	Crude	Products	Crude	Products
1921	35,829,732	2,341,116	7,662,428	16,678,000
1922	31,395,545	4,379,329	7,239,400	23,053,200
1923	13,340,448	2,604,955	8,976,100	28,147,200
1924	23,194,004	650,916	12,467,000	35,543,200
1925	20,399,099	287,862	10,119,600	38,162,700
1926	18,774,462	2,374,717	11,852,100	41,211,600
1927	18,839,281	72,258	10,238,200	42,145,500
1928	20,230,971	728,794	12,168,657	47,586,300
1929	24,230,975	422,813	17,953,400	44,322,900
1930	21,448,480	577,187	12,905,500	40,070,100

Suggestion for Adjustment

In advancing a suggestion for adjustment of the foreign oil problem, Mr. Teagle said:

"The proposal is that the equities between the United States and South American producers be adjusted by establishing a percentage ratio between the two areas. This was attempted by the Holmes committee in the early part of 1929 when it was urged that production both in northern South American countries (including Mexico in the group exporting oil) and the United States be held through 1929-1930 down to the 1928 level. This plan met with approval on the part of the American petroleum industry. To make such an agreement Congress might empower the President to invoke a tariff on oil imports in the event that the agreed upon percentage is not maintained.

"Since United States production is two-thirds that of the world, whatever percentage curtailment is made here could properly be applied as a yardstick in all other producing areas to keep world production balanced with consumption. Foreign producers generally would find it much to their interest to adopt such a policy.

"The petroleum industry was practically a unit in support of conservation until the agitation for shutting out foreign oil arose. Since then there has been a divergence of views which has worked against the success of proration. It would be greatly to the advantage of the whole industry if this difference in viewpoints could be reconciled and the industry lined up in support of an economically sound conservation policy covering both domestic and foreign production."

While market conditions since the publication of the Jersey company's suggested plan have not been such as to make further pressing of the import problem imperative, companies interested in South American oil have given considerable consideration to Mr. Teagle's proposal, and it is considered likely that this plan, or one patterned along similar lines, will be much in the limelight when negotiations for a definite settlement of the oil import question are resumed.

Large American companies with important investments in South American oil-producing areas are understood to have made adequate preparation for the safeguarding of these investments, and it is believed that any embargo or tariff action sufficiently important to add substantially to the cost of bringing these oils into the United States would be followed by an intensive program of refinery construction in the Caribbean area, and within a comparatively short time the creation of intensive production with American Gulf markets in export selling.

Russian gasoline, which entered import tables some months ago for the first time, is not taken as a serious competitive factor by the domestic industry, although considerable interest has been aroused in reports that the Soviet naphtha syndicate has contracted to supply substantial quantities of motor fuel to an independent marketer in the Detroit area, deliveries to be made by all-water shipment from the Black Sea. Soviet marketing in this country, it is felt, would amount to little more than propaganda, and effective measures could be taken to minimize Soviet participation in American oil marketing operations in domestic markets.

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS FOR FIRST SIX MONTHS OF 1931 AND 1930

	Barrels					
	Gasoline		Crude		Gas and fuel	
Week ended—	1931	1930	1931	1930	1931	1930
January 3	272,000	.....	1,189,000	*1,491,000	507,000	.....
January 10	194,000	.....	1,382,000	*1,868,000	315,000	.....
January 17	333,000	.....	666,000	*1,980,000	720,000	.....
January 24	369,000	.....	1,292,000	*2,193,000	351,000	.....
January 31	106,000	.....	939,000	*1,446,000	392,000	.....
February 7	282,000	.....	1,406,000	*1,378,000	638,000	.....
February 14	245,000	.....	1,086,000	*1,788,000	116,000	.....
February 21	159,000	.....	819,000	*2,294,000	427,000	.....
February 28	366,000	.....	1,149,000	*2,001,000	564,000	.....
March 7	371,000	.....	885,000	*1,816,000	348,000	.....
March 14	319,000	.....	897,000	*1,988,000	378,000	.....
March 21	311,000	32,000	1,026,000	824,000	677,000	415,000
March 28	242,000	401,000	609,000	1,229,000	479,000	261,000
April 4	345,000	526,000	1,274,000	1,409,000	670,000	305,000
April 11	341,000	177,000	712,000	978,000	324,000	237,000
April 18	256,000	179,000	974,000	1,157,000	356,000	429,000
April 25	243,000	193,000	468,000	1,402,000	552,000	313,000
May 2	278,000	275,000	1,097,000	1,284,000	410,000	391,000
May 9	260,000	541,000	775,000	1,167,000	342,000	223,000
May 16	65,000	323,000	1,108,000	1,619,000	184,000	311,000
May 23	328,000	430,000	729,000	1,151,000	340,000	649,000
May 30	300,000	246,000	1,146,000	1,139,000	282,000	348,000
June 6	214,000	249,000	542,000	1,532,000	169,000	284,000
June 13	405,000	526,000	1,259,000	680,000	398,000	529,000
June 20	61,000	115,000	667,000	1,312,000	383,000	602,000
June 27	40,000	300,000	806,000	1,262,000	237,000	63,000

*All products. Import totals, by products, were not reported in detail until March, 1930.

IMPORTS OF CRUDE AND REFINED, BY MONTHS, FOR FIRST HALF OF 1931 AND 1930

	Bbls. of 42 gals.	
	1931	1930
January	8,301,000	8,067,000
February	7,035,000	7,389,000
March	7,650,000	8,518,000
April	6,659,000	7,267,000
May	6,202,000	9,274,000
June	6,384,000	7,754,000

OIL CONFERENCE POSTPONED

AUSTIN, Tex., July 27.—The Oil States Conference set to meet in Denver August 10 will not hold its session until August 24, according to A. M. Howsley, secretary of the Texas unit of the organization. The postponement was ordered because of the special session of the legislature which would have prevented Texas members from attending. Mr. Howsley also announced the resignation from the committee of Rep. A. P. Johnson. It was said to be probable that Rep. R. M. Hubbard of New Boston would succeed him.

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East Coast Exports Continue Decline

Steady Sharp Competition in Foreign Markets Reacts Against Domestic Refiners. Soviet a Growing Factor

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

Atlantic Coast refiners again experienced an unsatisfactory half year in their export operations during the first six months of 1931, and volume on principal refined products fell off sharply from the corresponding months of 1930 and 1929. The steady growth of refining facilities abroad, coupled with some decrease in world consumption due to economic conditions abroad, and the steadily increasing competition afforded by Russia and Rumania, has all reacted against export trade in eastern markets during the first half of the year, and, while export operators are more hopeful regarding the outlook for bulk sales out of the Gulf during the second half of the year, conditions in the eastern market are not so bright.

A large part of the gasoline, naphtha and kerosene business of eastern exporting interests (including export shipments classed under the designation "petroleum, refined") consists of cased products. Up to the past year or so foreign refining interests had concentrated their attention to a considerable extent upon the bulk markets, and American exporters of cased products, most of whom had their brands well established in foreign markets, did not suffer so heavily in world markets.

During the past year, however, several conditions have mitigated against the interests of exporters of cased goods. In the first place, the petroleum marketing industry abroad has developed rapidly, and markets formerly using cased products almost exclusively are now equipped in many instances to handle the bulk products, which are more economical from a quantity standpoint. In addition, world-wide depression has cut into the consumption of gasoline and kerosene in markets which have extensively utilized the cased products in former years. Thirdly, and still more to the point, particularly in South American markets, the Russian Soviet Naphtha Syndicate has launched an aggressive marketing campaign featuring cased naphthas and kerosenes, with the avowed intention of underselling American refiners. Turbulent political conditions in many South American countries during recent months have not only resulted in disturbed internal conditions reacting against gasoline and kerosene movement and consumption in normal volume, but has also resulted in the establishment of some governments favoring the Soviet scheme of political thought, and has facilitated the infiltration of Soviet products into markets previously largely dominated by American sellers.

Dumping of Rumanian refined products in world markets during the early months of the year also reacted to some extent against export volume on the part of East Coast sellers, but Rumanian competition is not as drastic as was formerly the case, and less concern is now felt among export operators in this territory over the Rumanian situation.

While figures covering New York exports for the first half of the year show drastic declines when compared with the corresponding periods in 1930 and 1929, this does not necessarily indicate that operators here have not handled, in the aggregate, as much business as in former years. On the contrary, it is believed that some eastern operators have been successful in booking considerable business, on a price basis, and moving products out of the Gulf, where they covered their requirements by purchases of distressed material in the open market. There are, of course, no figures covering the amount of business handled in this manner, however.

Export Association

Eastern export operators are considerably interested in reports indicating that the Export Association is continuing its corporate existence, and there is considerable speculation among the eastern trade as to the ultimate plans of the sponsors of the export group. The present time, it is generally felt, is not favorable to a revival of active market participation by the Export Association, but reports that member companies in the export group are favorable to a continuation of the organization, with the view of ultimately reviving the association as the controlling factor in export oil operations, have aroused widespread interest.

Socony-Vacuum Merger

Another factor of general interest to the trade here lies with the effect of the Socony-Vacuum merger upon export operations in the New York market. Consolidation of these two companies, both of which are strongly entrenched in world markets, is expected to result in a gain in export trade of the two companies, but it is problematical as to whether the broader exporting activities of the two companies will center here or at the Gulf, with most interests in the trade believing that the Gulf will get the call as the center of operations due to the fact that market conditions at present, and the outlook for the near future, favors the Gulf as the source of low-priced products.

Germany and France

The steady progress which is being made in the building up of a domestic refining industry in France, and, to a lesser extent, developments along the same lines in Germany, likewise furnish cause for serious concern to export operators in the East. France has been one of America's largest customers for refined petroleum products, but the current outlook indicates a steadily increasing shift in French purchases from refined products to crude oil for the next two or three years, and then a sharp decrease in purchases of both in the American market as the French proportion of Mosul crude from the Iraq fields becomes available for French refineries through completion of the Iraq pipe line.

Germany has been steadily building up a domestic production of crude petroleum, and the growth of the German refining industry has kept pace with increased crude output. While Germany is yet not into position to take care of even half of its own petroleum requirements, indications point to continued increases in production of both crude and refined oil in that country and a gradually tapering off of purchases in the American market.

Large integrated companies have seen the handwriting on the wall and have made provision for safeguarding their foreign investments by falling in line with developments abroad. Standard Oil Co. of New Jersey, Atlantic Refining and Gulf have strengthened their position in France by participation with French interests in a major refinery construction program in that country. Vacuum is also building a refinery in France. Standard of New Jersey, through control of Anglo-American Oil Co., has fortified its position in Great Britain.

Smaller countries, however, lacking the resources of the major units of the industry, are in less favorable position with respect to their export interests, and in most instances are being compelled to relinquish their foreign outlets one by one and concentrate on their domestic marketing operations in an effort to make up for volume lost in foreign fields.

Possible International Agreement

Some interests in the export field are still hopeful of a possible international agreement with respect to world markets, but thus far nothing definite has been witnessed in this direction. The general feeling appears to be that such a compact, to be successful, would take the form of an alignment of American companies, probably participating as a group through the Export Association or some similar body, with the Royal Dutch-Shell combine. This would form a group dominating world production, with the exception of Russia, and would result in the world petroleum industry presenting a solid front to the Soviet petroleum monopoly. In other quarters, it is considered

(Continued on Page 181)

A COMPARISON OF EXPORTS OF REFINED PETROLEUM PRODUCTS FROM NEW YORK
(By quarters for 1931 and the previous two years)

	First quarter (Gallons)			Second quarter (Gallons)		
	1931	1930	1929	1931	1930	1929
Gasoline	2,515,000	5,269,000	7,790,000	2,370,000	4,109,000	5,762,500
Naphtha	4,038,000	14,732,000	16,057,500	3,240,000	7,230,000	16,425,900
Kerosene	1,304,000	2,552,000	6,466,300	903,000	2,438,000	4,010,300
Fuel oil	1,335,000	672,000	492,100	925,000	1,482,000	1,570,400
Lubricating oil	19,086,000	24,107,000	25,864,400	23,367,000	21,256,000	23,111,800
Petroleum, refined	11,652,000	20,020,000	21,778,400	9,295,000	15,008,000	21,883,400
	Pounds			Pounds		
Petrolatum	721,000	609,000	273,000	794,000	482,000	209,000
Lubricating grease	12,245,000	16,008,000	16,405,100	9,990,000	12,831,000	14,435,200
Paraffin wax	21,060,000	19,318,000	21,813,700	20,493,000	14,554,000	14,835,900
Scale	6,525,000	8,472,000	8,225,100	7,995,000	7,322,000	3,174,500
Refined	3,090,000	4,542,000	68,700	2,415,000	2,166,000	1,394,200

WATER SHIPMENTS FROM GULF COAST PORTS FIRST SIX MONTHS 1931

CRUDE SHIPMENTS

Company and port—	Destination	Jaunary	February	March	April	May	June	Total
Atlantic Oil Prod. Co., Atreco	Coastwise	988,539.04	956,487.60	1,091,725.28	692,162.15	766,138.41	879,423.68	5,374,466.16
Atlantic Oil Prod. Co., Beaumont	Coastwise	.....	40,003.68	78,215.23	.....	.....	.....	158,218.91
Gulf Refg. Co., Port Arthur	Coastwise	277,387.54	249,616.43	247,393.43	135,350.59	297,141.81	266,817.78	1,473,812.63
Humble Oil & Refg. Co., Baytown	Coastwise	169,004.00	79,756.98	112,326.00	117,290.00	405,811.00	191,463.00	1,015,650.00
Humble Oil & Refg. Co., Harbor Island	Coastwise	1,555,395.00	1,693,955.00	1,995,425.00	1,700,436.00	2,764,076.00	2,099,217.00	11,808,504.00
Humble Oil & Refg. Co., Ingleside	Coastwise	167,652.00	66,676.00	246,335.00	167,308.00	182,476.00	169,016.00	999,364.00
Humble Oil & Refg. Co., Neches	Coastwise	.....	74,413.00	.....	.....	77,086.00	.....	151,499.00
Humble Oil & Refg. Co., Texas City	Coastwise	478,314.00	533,583.00	409,326.00	262,034.00	651,731.00	370,051.00	2,645,023.00
Magnolia Petroleum Co., Beaumont	Coastwise and export	625,547.64	772,541.36	636,631.77	745,573.82	564,390.11	735,039.71	4,079,624.41
Pure Oil Co., Smiths Bluff	Coastwise	769,138.21	277,184.28	444,767.91	207,358.76	206,834.05	473,413.67	2,378,696.88
Standard of Louisiana, Baton Rouge	Coastwise	118,836.90	139,741.00	139,242.00	169,434.00	167,272.00	280,841.00	955,366.00
Standard of Louisiana, Baton Rouge	Export	.....	71,021.00	52,203.00	124,636.00	.....	80,026.00	327,886.00
Sun Oil Co., Sabine Pass	Coastwise	1,204,660.00	.....	1,006,649.67	929,354.84	1,404,626.35	.....	4,545,310.86
The Texas Company, Port Arthur	Coastwise	284,879.00	274,323.00	285,312.00	194,217.00	255,998.00	884,978.00	2,179,707.00
The Texas Company, Port Arthur	Export	.....	72,490.00	.....	73,436.00	149,824.00	154,987.00	450,737.00
Total first six months, 1931		6,579,363.43	5,341,790.35	6,745,457.34	5,398,491.16	7,893,294.73	6,585,273.84	38,543,670.85
Total first six months, 1930		6,352,026.64	6,257,133.53	7,874,226.92	6,896,076.35	8,359,414.14	6,961,980.43	42,700,858.01

REFINED PRODUCTS

Company and port—	Destination	Jaunary	February	March	April	May	June	Total
Atlantic Oil Prod. Co., Atreco	Coastwise	.....	.....	.....	30,513.79	.....	20,744.52	51,258.31
Gulf Refining Co., Port Arthur	Coastwise	2,414,637.43	1,932,040.27	1,959,308.34	2,348,922.95	2,129,043.08	2,346,975.37	13,159,327.52
Gulf Refining Co., Port Arthur	Export	261,505.74	66,746.52	143,277.20	123,146.06	69,989.92	153,836.81	818,502.25
Humble Oil & Refg. Co., Baytown	Coastwise	1,039,128.75	1,117,911.79	1,375,369.97	1,413,316.14	1,397,942.14	1,412,632.21	7,656,201.10
Humble Oil & Refg. Co., Baytown	Export	1,507,657.69	1,502,213.03	1,384,967.69	1,600,824.50	1,239,764.37	868,407.38	8,103,834.66
Magnolia Petroleum Co., Beaumont	Coastwise and export	2,365,108.59	1,535,415.40	1,831,454.21	1,642,963.09	1,787,731.78	1,551,168.04	10,713,831.11
Pure Oil Co., Smiths Bluff	Coastwise	395,841.85	323,475.46	314,404.77	333,683.86	547,590.78	389,464.82	2,284,461.04
Pure Oil Co., Smiths Bluff	Export	.....	149,810.33	162,264.78	45,544.55	80,416.85	68,441.32	506,467.83
Standard of Louisiana, Baton Rouge	Coastwise	964,192.00	817,001.00	1,144,851.00	561,514.00	595,527.00	837,651.00	4,920,736.00
Standard of Louisiana, Baton Rouge	Export	863,028.00	415,151.00	495,286.00	346,923.00	785,217.00	882,884.00	3,688,589.00
The Texas Company, Port Arthur	Coastwise	945,167.00	1,406,417.00	1,460,730.00	1,277,545.00	1,446,937.00	1,244,731.00	7,781,527.00
The Texas Company, Port Arthur	Export	534,777.00	525,261.00	261,895.00	742,265.00	471,041.00	449,377.00	2,984,556.00
Total first six months, 1931		11,291,044.10	9,791,382.80	10,463,798.06	10,367,060.47	10,551,191.93	10,205,314.47	62,669,791.83
Total first six months, 1930		11,807,250.31	11,212,960.50	12,437,101.16	11,568,771.03	10,622,907.70	11,492,920.37	69,141,911.62
Total crude and refined shipments, 1931		17,870,407.53	15,133,173.15	17,209,255.40	15,765,551.63	18,444,486.66	16,790,588.31	101,213,462.67
Total crude and refined shipments, 1930		19,159,276.95	17,470,094.03	20,311,328.08	18,464,847.43	18,982,321.84	18,454,901.30	111,842,769.63

Gas Line Construction on Large Scale

First Half of 1931 Saw Thousands of Miles of New Lines Laid to Connect Cities That Have Not Known Benefits of the Fuel

The growing importance of the natural gas industry, which a few years ago appeared to be going backward, is attested by the big gas lines which have been and are being constructed from and through gas fields in Pennsylvania, New York, Kentucky, Kansas, Oklahoma, Texas Panhandle, Southwest Texas, North Louisiana, New Mexico, Colorado, Wyoming, Montana and California, and Canada.

The first half of the year saw no let-up in construction work on a big scale, one of the lines out of the Texas Panhandle extending northeasterly for 1,200 miles and another for 950 miles.

Enormous gas fields have been developed in recent years, fields of a size and capacity never known in the industry in years gone by. Even so far east as the vicinity of Watkins, N. Y., and Tioga County, Pennsylvania, two big fields are now being developed which had no existence a short time ago, and which now call for pipe lines to distant cities. California is entering upon its greatest natural gas period and western Kansas is coming into its own as a natural gas producer on a gigantic scale.

950-Mile Gas Line

Late reports indicate that the Continental Construction Co.'s (Natural Gas Co. of America) 950-mile 24-inch natural gas pipe line from the Texas Panhandle to Chicago, Ill., will be able to deliver gas in Chicago by August 1. The construction on most of the main lines and all the work on the gathering lines is completed. The only work to be finished is on the eastern end of the main line where the last contract work is under way from Joliet, Ill., to the Mississippi River. The last contract was 155 miles on which six main line gangs are employed. The Missouri and Mississippi River crossings have been completed, tested and found to be satisfactory.

It has been estimated that from four to six weeks will be necessary to test the main line and place it in smooth operating condition. The compressor stations are being completed and tested also. If the schedule is maintained natural gas on a commercial scale should be through the line by September 15. Permanent operating headquarters were established in Chicago, Ill., on July 15 and the remainder of the construction work was directed from that point.

1,200-Mile Line

The other large gas line under construction is the Panhandle Eastern Pipe Line Co.'s 24-inch line from the Texas Panhandle to Indianapolis, Ind., a distance of 1,200 miles. It was completed as far as the Mississippi River on July 15. The arrival of natural gas at that point, a distance of about 660 miles, is believed to be the longest 24-inch line transporting natural gas in the United States. The river crossing was also completed about the same time.

The main line starts in the Texas Panhandle and enters Kansas near Liberal in the southwestern part of the State and runs northeast, passing between Wichita and Newton. It runs across Missouri, crossing the Mississippi River near Louisiana, Mo. Some 75 towns in Kansas, Missouri, Illinois and Indiana are to be served by the pipe line, which is expected to have a capacity of 130,000,000 feet of gas per day. Although the pipe line project starts in the Texas Panhandle, the builders expect also to draw gas from wells in the Hugoton gas field in southwestern Kansas.

Smaller Local Lines

The State Fuel Supply Co. completed 8½ miles of 4-inch pipe line from the Sinclair Oil & Gas Co.'s gas well in Section 14-26-24w, Harper County, Oklahoma, to the town of Laverne, Okla. The company was granted a franchise and it completed the piping of the town shortly after. Another franchise was granted the company in Buffalo, Okla., and the line was extended to that town.

The Panhandle Power & Light Co. completed 75 miles of 6-inch gas line during the first six months of the year from Dumas, Tex., to Boise City, Okla.

The Western Service Corp. of Butler, Mo., completed 110 miles of different sized pipe from Trading Post, Kans., to Butler, Mo. The pipe line consisted of 53 miles of 8-inch and 57 miles of 4-inch, and these lines will supply gas to seven communities from Butler, Mo., to Deepwater and from Deepwater to El Dorado Springs, Mo. The project extended the company's gas line from Pleasanton, Kans.

Rocky Mountain Line

The principal natural gas pipe line construction inaugurated in the first half of 1931 in the Rocky Mountain area is in Wyoming and western Nebraska and Montana. The principal Wyoming project is that of the North Central Gas Co., which has practically the same officers and directors as the New York Oil Co. This company is extending its system eastward from Glenrock, Wyo. The company leased early the past spring the Stanolind Pipe Line Co.'s oil line extending from Salt Creek to Freeman, Mo., a distance of 720 miles, built several years ago by the Sinclair Pipe Line Co. At the present time 178 miles of this line from the Clayton tank farm near Glenrock to Bridgeport, Nebr., will be converted into a gas carrier. The line is being emptied of oil and tested and has been found to be in good condition for a gas carrier. The North Central system includes a 10-inch 18-mile line from the eastern terminus of its present system at Glenrock to a connection with the Stanolind line at Clayton; laterals from the main line to the towns to be served, a lateral of 18 miles of 4-inch line from Guernsey to Wheatland and another lateral to Alliance, Nebr. Distributing system have been completed in Douglas, Guernsey, Fort Laramie, Lingle and Torrington, in Wyoming, and Morrill and Mitchell, in Nebraska, and the work is being rushed in the other towns along the right of way. The gas will be taken from the Big Sand Draw and Muskrat gas fields in Fremont County, which are operated by the Producers & Refiners Corp., and which are already connected with a line through Casper to Glenrock operated by the New York Oil Co. The project will cost approximately $6,000,000 and is scheduled for completion by September 1. Eventually it may be extended farther east. A booster station being constructed just east of Casper is more than 50 per cent completed.

The Wyoming Public Service Commission has granted a certificate to C. E. Bivens, S. Marvin James and associates of Denver for the construction of a line from the Baggs Dome, in southwestern Carbon County, Wyoming, where these interests have gas production, to Laramie. Plans are under way for building this line this year and it is probable that the Utah Construction Co. will do the work. The line will be about 133 miles long and consist of 8-inch pipe. Towns to be served include Saratoga, Rock River, Bosler and Laramie and possibly Cheyenne. These interests are establishing their

(Continued on Page 121)

California Gasoline Factor in East

Markets Absorbed More Than 8,000,000 Bbls. of Pacific Coast Motor Fuel in First Half of Year

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

Notwithstanding continued South American competition, new competition from the Gulf Coast refining area, and unfavorable market conditions generally, California refiners met with success in holding their Atlantic Coast markets during the first six months of 1931. Total shipments of California motor fuel to Atlantic and Gulf Coast ports for the first half of the year (almost all of which reached East Coast markets) aggregated 8,211,000 bbls., as compared with a total of 8,789,000 bbls. in the first half of 1930 and 9,527,000 bbls. during the first six months of 1929.

California refiners, who have been important factors in eastern markets for some years past, have now succeeded in establishing regular outlets for their product on the Atlantic Seaboard and shipments of the Pacific Coast product now represent an orderly movement of products into established outlets, rather than the "dumping" of previous years, when the California product was an unsettling factor in eastern market circles.

Standard Oil Co. of New York, Richfield Oil Corp. of California, Sun Oil Co., Tide Water Associated Oil Co., Atlantic Refining Co., and Standard Oil Co. of New Jersey are now distributing California gasoline in substantial quantities in eastern markets, the Pacific Coast motor fuel finding favor in the East both as a straight product and as a blend in the various grades of premium fuel marketed in this territory.

Weak and unsettled gasoline markets in the East during the first half of the year reacted against open market trading in California gasoline for shipment to the eastern seaboard, however, and movement of the California product was almost wholly for the account of the larger integrated companies with California refineries. A more favorable market for gasoline this year, it is believed, would have materially stimulated movement of California gasoline eastward, as Pacific Coast refiners are still carrying substantial stocks of gasoline, as indicated by the following table of gasoline holdings in principal refining areas at mid-year:

(Barrels of 42 Gallons)	
East Coast	7,558,000
Appalachian	1,558,000
Indiana, Illinois, Kentucky	6,311,000
Oklahoma, Kansas, Missouri	3,284,000
Texas	7,927,000
Louisiana-Arkansas	1,541,000
Rocky Mountains	1,833,000
California	11,856,000
Total	41,868,000

Thus, California refinery stocks of gasoline at mid-year accounted for more than 25 per cent of the holdings of the entire American petroleum industry. While California motor fuel stocks continue large, however, the Pacific Coast refiners have curtailed their operations and have made substantial progress in getting their gasoline holdings down to "working stock" levels, mid-year supplies of 11,856,000 bbls. comparing with stocks of 15,338,000 bbls. at the start of the year. This decline during the six months' period just ended is encouraging when considered with the increase of more than 500,000 bbls. in stocks made by California refiners for the full year 1930, at a time when the industry as a whole was endeavoring to curtail surplus holdings of gasoline and other products.

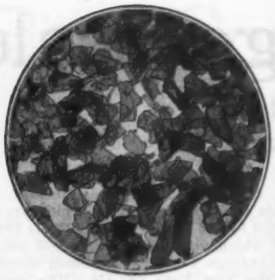
While shipments of California gasoline eastward have been well maintained during the first half of the year, California motor fuel now appears to have definitely lost its position as price maker for eastern markets, and has relinquished that doubtful distinction to the new king, East Texas. California motor fuel is now selling on a par in the East with gasoline refined in this territory, and posted prices for the California product are now largely determined in the spot tank car market by the current offering prices on East Texas gasoline. In former years, California motor fuel was often in the premium class and sold in the open market at one-half to 1 cent per gallon over posted prices for other gasolines. The fact that the California product is now sold on a par with other gasolines does not indicate any let down in the quality of the Pacific Coast product, but on the contrary is a reflection of the increased quality achieved by eastern refiners of motor fuel as a result of the many improvements in refining technique at eastern plants.

It Will Keep Coming

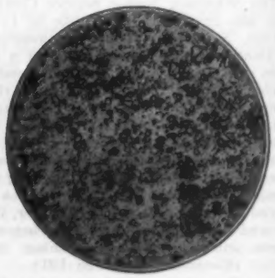
Conditions in the tanker market at the present time are favorable for a continued large movement of California gasoline to eastern markets, and it is not expected that shipments over the closing half of the year will show any marked decline from the totals for the first six months of the period. Current tanker charter rates are the lowest in history, and with vessels available in plentiful supply, marketing companies in the East are able to handle the California product on a favorable basis.

Considerable interest is shown in eastern market circles over the position of Richfield. With the parent California company in the hands of a receiver, Richfield Oil Corp. of New York, eastern marketing subsidiary, has been authorized by the California courts to continue its operations as formerly, and the eastern Richfield company is an important factor in gasoline marketing in Atlantic Seaboard territory. Interest in the outcome of the Richfield situation is particularly keen due to the fact that it is understood that Doherty interests are in position to take over the entire Richfield company. While the interest of the Cities Service group is understood to be primarily the acquisition of producing, refining and marketing facilities on the Pacific Coast, it is pointed out that consolidation of the marketing operations and outlets of Richfield Oil Corp. of New York with those of the eastern Doherty petroleum interests would place the latter group in the "major factor" category in the East, and would bring about an important realignment in eastern marketing.

Sinclair Consolidated Oil Corp. is also credited with the intention of expanding its operations in California, through the acquisition of Rio Grande Oil Co. or oth-



This reproduction of a photo-micrograph shows how flakes of internal reinforcement used by Barrett tend to interlock. They laminate with waterproofing agent and give Barrett Pipe Enamels unusual tensile strength and toughness.



And this reproduction of a photo-micrograph shows how ordinary filler, the granular or dust-type, looks. It is composed of smoothly surfaced particles in loose contact.

For pipe of large diameter The Barrett Company will furnish equipment required to revolve pipe and spread enamel.

More bitumen per finished ton . . . .

Barrett Specification

PIPE LINE ENAMELS

The flake-type mineral reinforcement used in Barrett Specification Pipe Line Enamels permits the use of a larger percentage of coal-tar pitch in the production of each finished ton. Since coal-tar pitch is the nearest perfect waterproofing agent known, the greater quantity of it in Barrett Enamels means superior waterproofing efficiency. In addition, the reinforcement used is non-porous, non-absorbent, chemically inert and dielectric. Send for complete information on Barrett Specification Protection.

The Barrett Company

40 Rector Street New York, N. Y.

er California oil interests, and consummation of this projected expansion would likewise change the complexion of the California gasoline situation in the East.

Another Projected Alignment

Still another projected realignment in company interest which would have a far reaching inflence upon the extent of California's gasoline shipments to the Atlantic Seaboard is the rumored plan for a consolidation between Standard Oil Co. (New Jersey) and Standard Oil Co. of California. Conversations looking to the establishing of closer relations between these organizations have already been held and the successful termination of the Socony-Vacuum consolidation, from the standpoint of legality, has given strength to the reports of pending important negotiations between the Jersey and California companies.

While California refiners have been successful in holding their eastern markets this year, the reverse has been the case in so far as shipments of California motor fuel to Gulf Coast markets are concerned. Some quantities of California gasoline moved into the Gulf Coast during the first quarter of the year, but the rapid development of the flush producing fields in East Texas, accompanied as it was by the swift building up of new refineries in that area, resulted in a flood of low priced gasoline in the Gulf territory which made marketing of the California product an extremely unprofitable venture in that territory. An occasional small cargo of California gasoline still reaches the Gulf but these shipments, it is understood, are almost entirely used for blending with other gasolines for the production of premium grades of motor fuel, and California gasoline is no longer a factor in the Gulf tank car markets.

CALIFORNIA GASOLINE SHIPMENTS TO ATLANTIC AND GULF COAST PORTS FOR FIRST SIX MONTHS OF 1931, 1930, AND 1929

(Barrels of 42 Gallons)

Week ended—	1931	1930	1929
Jan. 3	388,000	83,000	239,000
Jan. 10	646,000	447,000	397,000
Jan. 17	334,000	575,000	418,000
Jan. 24	154,000	535,000	294,000
Jan. 31	488,000	398,000	68,000
Feb. 7	267,000	379,000	654,000
Feb. 14	165,000	612,000	445,000
Feb. 21	311,000	117,000	80,000
Feb. 28	198,000	105,000	517,000
Mar. 7	390,000	178,000	287,000
Mar. 14	388,000	470,000	225,000
Mar. 21	220,000	360,000	667,000
Mar. 28	454,000	439,000	536,000
Apr. 4	487,000	197,000	242,000
Apr. 11	192,000	176,000	172,000
Apr. 18	196,000	195,000	355,000
Apr. 25	496,000	393,000	408,000
May 2	395,000	372,000	362,000
May 9	212,000	263,000	374,000
May 16	544,000	455,000	537,000
May 23	306,000	387,000	414,000
May 30	142,000	180,000	312,000
June 6	438,000	274,000	161,000
June 13	179,000	368,000	387,000
June 20	173,000	445,000	595,000
June 27	148,000	386,000	381,000
Total	8,211,000	8,789,000	9,527,000

GAS LINE CONSTRUCTION SHOWS LARGE INCREASE

(Continued from Page 119)

headquarters in the Midland Savings Building in Denver.

In Montana

The major project under way in Montana is the construction of a system from the Cut Bank Field in Glacier County to Anaconda and Butte in the northern part of the State and from the Dry Creek Field in Carbon County in the southern part of the State to Livingston and Bozeman, by the Montana Power Co. This project was made possible recently by the purchase of the natural gas and pipe line interests of L. B. O'Neil and associates in the Cut Bank area and the purchase of the Ohio Oil Co.'s project which was under construction to Livingston and Bozeman. The system is being built as two separate units. The southern unit consists of 118 miles, mostly of 10-inch pipe, and will serve Livingston, Bozeman, Big Timber and Columbus. It will cost approximately $3,000,000 and is scheduled for completion by August 1. The Phoenix Utilities Co., a subsidiary of the Electric Bond & Share Co., has the contract.

The northern unit will cost approximately $12,000,000 and will consist of 243 miles of 20-inch main trunk line extending from the Cut Bank Field to Anaconda. Winston Brothers of St. Paul have the contract for the northern unit on which construction is expected to be completed by September 1. The line will supply Helena, in which place the distribution system has been practically rebuilt; Butte and Anaconda, where rebuilding of distribution system is under way; and the mines and smelters in the Butte district, and a number of smaller towns along the right of way.
interest in 18,000 acres.

Colorado Gas Lines

In Colorado, the Colorado Interstate Gas Co. is building a 10-mile 8-inch connection between its main line east of Colorado Springs to the city limits of Colorado Springs. This connection is with its trunk line from the Amarillo Field in Texas to Denver. A contract made between city officials and Arthur K. Lee last year was transferred to the Colorado Interstate company with the approval of the city council and the city will purchase the gas from the Colorado Interstate company for distribution in the municipally-owned plant.

The Colorado-Wyoming Gas Co., a subsidiary of the Cities Service Co., built a 24-mile line from a connection with its system near Lafayette to Brighton and Fort Lupton, consisting of 3-inch and 2-inch pipe and a connection 1 mile long from its main line to the town of Longmont which is now being supplied. The Arkansas Valley Natural Gas Co. built a short 4-inch line to supply the Veterans Hospital at Lyons. The gas is purchased from the Colorado Interstate Gas Co.

Gulf Coastal Lines

Outstanding in gas line construction on the Gulf Coast so far this year has been the South Louisiana system of the United Pipe Line Corp., subsidiary of the United Gas System. Consisting of 446 miles of pipe, ranging from 14-inch down to 2-inch, it is one of the largest single gas transportation projects undertaken in the Southwest in several years. Laying of the system began last December and was entirely completed late in June. The main trunk line extends from a point near Kirbyville, East Texas, to Franklin, St. Mary Parish, Louisiana. At the former point it ties into the 18-inch Northeast Texas-Beaumont trunk line of the Magnolia Gas Co., another unit of the United Gas System. Six main branch lines extend off this main line, touching virtually all the more important towns and communities in southern Louisiana as far east as Franklin. Pipe laid on this system included 46 miles of 14-inch, 16 miles of 12-inch, 53 miles of 10-inch, 30 miles of 8-inch, 116.5 miles of 6-inch, 66.5 miles of 4-inch, 95.5 miles of 3-inch and 22.5 miles of 2-inch.

The Houston Gulf Gas Co., another unit of the United Gas System, completed looping of its Refugio-Houston trunk line. The looping was laid in two sections, one between Refugio and Edna and the other from Ganado to Houston. This new line, which is 16-inch pipe, increased the capacity of the system to 100,000,000 feet daily.

The United Gas System also put in another system extending from the Boggy Creek Field southward to Huntsville. This main line consisted of approximately 100 miles of 6-inch pipe and serves 10 important cities.

Houston Pipe Line Co. put in 10 miles of 2-inch line from Skidmore to Beeville, connecting at the latter place with the company's Refugio line.

New Lines in California

There was only one natural gas pipe line started in California during the first half of 1931, and, while no further major installations are scheduled to be started in the near future, tentative plans have already been formulated to augment existing facilities by laying a new gas transmission line from Milpitas Junction to the San Francisco Bay region early in 1932. This projected pipe line will be constructed by the Pacific Gas & Electric Co. and present plans call for either 20 or 26-inch pipe. Rights of way have already been secured for this line which will extend 45 miles up the San Mateo Peninsula along a route west of existing facilities. The existing natural gas transmission line of the Pacific Gas & Electric Co. from Buttonwillow and Kettleman Hills separates at Milpitas, one branch going up the east side of San Francisco Bay and the other up the San Mateo Peninsula on the west side of the bay. The line projected for construction in 1932, which will parallel the existing line up the peninsula, will more than double the transmission facilities into the city of San Francisco.

The Southern Fuel Co., a joint undertaking of the Pacific Lighting Corp. and the Southern California Edison Co., is laying the only new natural gas pipe line undertaken in California during the current year to date. This project, extending from Kettleman Hills to Long Beach, Calif., is scheduled to be put into operation by December 1, 1931. Approximately 210 miles of 26-inch pipe will be required and under peak load will be capable of moving 150,000,000 feet of natural gas per day. The total cost is estimated at approximately $7,000,000. Officers of the Southern Fuel Co. are A. C. Macbeth, president and general manager; F. B. Lewis, vice president and assistant general manager, and George C. Ward and Franklin S. Wade, vice presidents. Engineering details and plans for the project have been developed by William Moeller, Jr., and A. F. Bridge, who, incidentally, will act as assistants to the president.

Canadian Pipe Line Work

In contrast with recent years, there has been this year little natural gas pipe line construction in Canada. In Ontario, Union Natural Gas Co. has laid a short line from its producing area near the Haldimand-Norfolk County line to Hamilton, where production will be used to supplement the artificial gas supply of the United Gas Co. and allied companies.

In Sarnia Township, Southern Ontario Gas Co. has secured a rural and summer resort franchise and will construct a small transmission and distributing system. This company has also secured a franchise for Yarmouth Township, near St. Thomas, which will involve a small extension; while if additional production is developed gas may be piped this summer from the Mosa gas field near Newbury to the Southern Ontario company's main transmission line.

In the southwestern peninsula, Union Natural Gas Co. is planning no important extensions, though there has been some discussion of a project to extend its existing system in Lambton County to supply Watford and Forest. This, however, is not likely to be undertaken this year.

In western Canada no important work has been undertaken. The large available surplus of gas from Turner Valley, however, has given rise to a number of more or less nebulous utilization projects. The most practical of these is the organization of a company by a group of independent operators to handle the marketing of their gas production. This production may be contracted as a reserve for some of the Montana pipe line systems; or in the alternative, efforts may be made to secure a market in Saskatchewan.

Earlier in the year, Tri-Cities Utilities, Ltd., of Regina, Saskatchewan, secured tentative franchises to supply Regina and Saskatoon with gas from the Kinsella Field in east central Alberta, but these franchises failed to secure the sanction of the burgesses. The Alberta provincial government, which has a certain control over export from the province, also took the stand that in any export project the available surplus from Turner Valley should first be considered.

Meanwhile, the Canadian Western Natural Gas Co. of Calgary is continuing work on its project of storing the surplus Turner Valley gas in the depleted sands of the Bow Island Field. Storage is progressing at the rate of around 5,000,000 feet a day and an extension of the plant is contemplated.

Important Eastern Lines

Good progress has been made on the 467-mile 22-inch gas line of the Columbia Gas & Electric Corp. from Mayville, Ky., through West Virginia and Virginia to Rockville, Md., and up the Shennandoah Valley, tying in with the system now in service along the southern Pennsylvania boundary at Coatesville, Pa. This will form a double system for extending the use of natural gas eastward and it is expected that the line will be completed about October 1.

Tying up with this line, and the one already in service, the Maryland Gas Transmission Corp., a subsidiary of the Columbia Gas & Electric Corp., is continuing work on the line which will traverse Maryland and supply natural gas to local gas companies and to the Consolidated Gas & Electric Light & Power Co. The latter company is at present increasing its present lines and extending them. Counsel for the Maryland Public Service Commission is reported as stating that the Maryland Gas Transmission Corp. has the right of eminent domain, a disputed point. Through these lines, it is expected that natural gas will be in use in Baltimore, Philadelphia and many other towns in the East in the vicinity at the close of the present year.

In the northern part of the State, the Columbia Gas & Electric Corp. is preparing the old New York Transit Co. oil line for use as a gas line carrier. Gas is being distributed as far east as Binghamton, N. Y., and as the line runs as far east as Saddle River, N. J., it is hoped to get it in shape for use in the near future for delivery of gas to industrial plants in the neighborhood of Paterson, N. J. Gas from Tioga County, Pennsylvania, or Wayne County, New York, is available for this line.

The Lycoming Natural Gas Co., a recently incorporated subsidiary of the Standard Oil Co. of New Jersey, has about 300 men at work on its 110-mile 20-inch line from the new Tioga Field to Syracuse, N. Y. A large part of the 10-inch gathering system has been completed in the Tioga Field. It is expected that this gas will be sold direct to concerns already established with distributing system and for use with manufactured gas. There are some reports that this line will be extended north of Syracuse.

The Pennsylvania Power & Light Co. through its subsidiary, the Susquehanna Gas Co., will start work this month on a 14-inch line from the Tioga Field to Williamsport, Pa., a distance of 60 miles. This may be the beginning of natural gas deliveries to many towns en route and even farther south.

Kentucky Lines

Missouri-Kansas Pipe Line Co. completed gas line from the town of Pierce in Green County through Metcalf and Barren Counties into Bowling Green in Warren County, approximately 40 miles in length, and is an 8-inch line. In the northeast corner of Barren County, this same company has a feeder line to Munfordville in Hart County, a distance of approximately 12 miles in length, which is a 4-inch line.

The Mississippi Industrial Gas Co. completed a 6-inch welded line from the Jackson gas field in Hinds and Rankin Counties, Mississippi to McComb, Miss., in February of this year. This line, which is 81 miles in length and of 12,000,000 feet capacity, is supplying Crystal Springs, Hazelhurst, Wesson, Brookhaven, Summitt, Magnolia and McComb. It is the first main line out of the Jackson Field.

The most important pipe line construction in West Texas during the past six months was the Oklahoma Natural Gas Corp.'s 12-inch gas line from the Big Lake Field, Reagan County, to San Angelo, and an 8-inch gas line by the same company from the same field to the Pecos Valley Power & Light Co.'s power plant on the Pecos River near the town of Girvin.

Wainwright and associates constructed about 12 miles of 4-inch line from the Pecos Valley Pool to the Grand Falls Pool, Ward County, and a gas line is being laid from the Pecos Valley Pool, Pecos County, to Fort Stockton and Alpine at the present time.

Nat J. Hardin and associates are surveying for a 6-inch gas line from the Ray Field to the town of Stephenville, Tex., in which it has a gas franchise, and will soon start construction on this line.

East Texas Led in Pipe Line Building

Gigantic Program Carried Out in That Area to Care for Rapidly Mounting Production in First Half of Year

Crude oil pipe line construction in the first half of 1931 was largely centered in the East Texas area. A number of big lines were run out of that new field with terminals at refineries on the Texas Gulf Coast or in Louisiana, and other big lines were started in the field and run to company trunk lines lying to the west. A large number of local pipe lines were built in the field and an enormous gathering system developed with the laying of lines to leases by major pipe line companies, local refiners and tank car shippers.

Comparatively little pipe line work was done in other states, as the East Texas Field with its enormous and rapidly rising production and cheap crude oil monopolized drilling and caused other large fields to hold down their production, making new pipe line work elsewhere a thing of the future.

At the beginning of 1931 there were but two short pipe lines, both 4-inch lines, serving the new East Texas district, these two connecting wells in the Joiner Pool, the first producing area in Rusk County, with loading racks on a branch line of the I. & G. N. Railroad at Friars Switch, 2½ miles north of the pool. Since that time, and since the discovery of the Kilgore and Lathrop Pools, the former located in northern Rusk County, and the latter in northern Gregg County, seven major pipe line companies have laid as many trunk lines into the district, and five other trunk lines are under construction with the possibility of two other such lines being laid to the Gulf Coast, where the majority of them terminate.

Nine major lines, including the Pure-Van Pipe Line Co.'s 10-inch from the Van Field, Van Zandt County, are now transporting crude from the district, while a myriad of short lines into the various areas connect with as many loading racks and refineries, and other loading racks, gathering systems, and more refineries are under construction or proposed.

Biggest Program on Record

The East Texas district is not only enjoying the name of the largest oil field in the United States, and possibly the world, but has also witnessed the greatest pipe line building program in the world, the majority of the lines being laid in the space of a few weeks. The geographical situation of the pool, only 200 miles from tidewater, was one big incentive for the companies laying major trunk lines out of the district, while the tragically low price of crude brought in companies which might otherwise have remained away from the district. Cheap construction costs of lines and better prices on line pipe also had considerable weight in bringing many lines into the producing areas, some of the companies utilizing second-hand pipe, or pipe not in use in other districts in building a part of their lines, especially in the gathering systems, and lines to loading racks, which number 35 at the present writing, with several others proposed. Three major pipe line companies are shipping out crude in tank cars while their main lines are shipping to capacity, taking advantage of all facilities in order to obtain as much cheap oil as possible from the district. Other companies are leasing or erecting steel storage for the impounding of the low-price crude, high gravity crude which is selling cheaper than at any other time in the history of the industry, except at Spindletop, Tex., when the low gravity oil went for as low as 4 cents per barrel.

Panola Led the Way

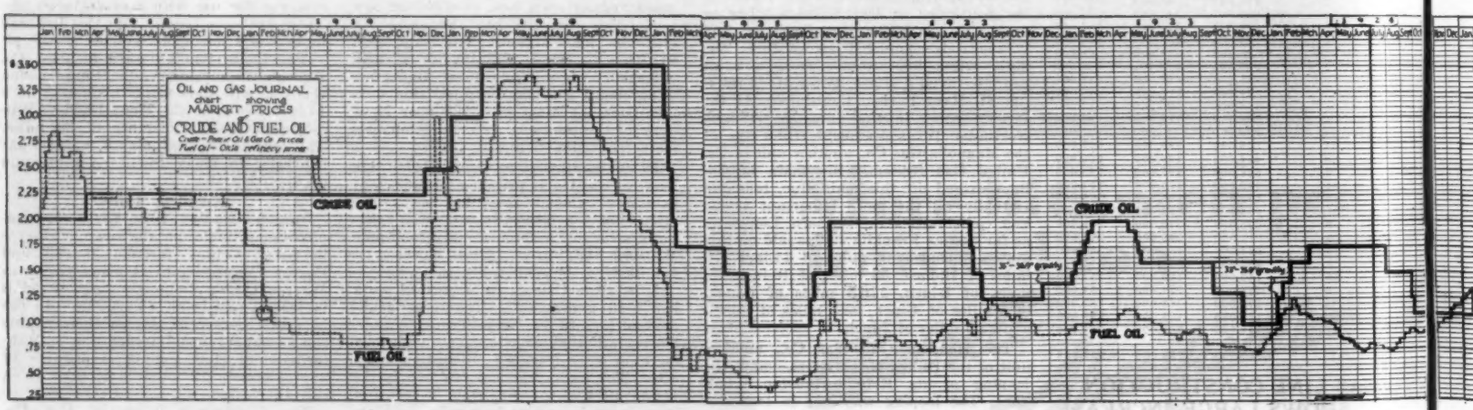
H. L. Hunt and associates organized the Panola County Pipe Line Co. and laid the first oil line into the Joiner area, a 4-inch line. Since that was laid, 13 other short lines have been laid to loading racks which load out Joiner crude, either from Friars Switch, Arp or Overton.

The Houston Oil Co. and Humble Pipe Line Co. laid the first two lines out of the Kilgore area, connecting to loading racks on the main line of the I. & G. N. Railroad north of the field and west of the town of Kilgore. Ten other lines have been laid from this area to connect with loading racks.

The Arkansas Fuel Oil Co. laid the first line out of the Lathrop area, 3 miles of 6-inch line to connect the discovery well, in which the company had an interest, to a loading rack located at Willow Springs on the T. & P. Railroad. Ten others have been built along the T. & P. between Willow Springs and Gladewater since this first one was erected. An 8-inch line was laid by the Houston Oil Co. from the Kilgore Pool to Amigo Switch on the Cotton Belt Railroad, and the Tyler Pipe Line Co. has a combination 6 and 8-inch line connecting the Joiner and Kilgore Pools to a loading rack located at Tyler.

There are now seven refineries in operation in the district, all of them owned by independent operators or small companies, while two major companies, the Humble Oil & Refining Co. and Sinclair Refining Co., are planning the construc-

REPRESENTATIVE PRICES ON MID-CONTINENT CRUDE OIL



	Price	
	Crude 36°gr.	Fuel oil 18-22°gr.
1920—		
January 2	....	2.10
January 6	3.00	....
January 16	....	2.20
March 1	3.50	....
March 3	....	2.50
March 12	....	2.60
March 18	....	2.80
March 26	....	3.05
April 3	....	3.30
April 6	....	3.35
May 25	....	3.40
June 7	....	3.30
June 20	....	3.20
July 14	....	3.25
August 14	....	3.40
August 27	....	3.25
September 13	....	3.00
September 16	....	2.90
September 27	....	2.80
October 5	....	2.70
October 15	....	2.60
October 18	....	2.40
October 28	....	2.25
November 13	....	2.10
November 15	....	2.00
December 10	....	1.90
December 29	....	1.80
1921—		
January 6	....	1.75
January 12	....	1.50
January 20	....	1.40
January 24	3.00	....
January 28	....	.80
January 31	2.50	....
February 4	2.00	.65
February 9	1.75	....
February 19	....	.75
March 4	....	.65
March 14	....	.70
March 21	....	.75
April 5	....	.70
April 16	....	.75
April 20	....	.70
May 2	1.50	....
May 3	....	.60
May 21	....	.55
May 28	....	.50
June 13	1.25	....
June 16	1.00	.40
June 20	....	.35
July 26	....	.40
August 6	....	.45
September 16	....	.47½
September 21	....	.50
October 1	1.25	....
October 6	....	.55
October 7	1.50	....
October 10	....	.60
October 15	....	.90
October 19	....	1.05
October 24	....	.95
November 7	2.00	....
November 8	....	1.35
November 16	....	1.05
November 20	....	.95
December 1	....	.85
December 5	....	.80
December 12	....	.75
1922—		
January 1	....	.85
January 5	....	.80
February 1	....	.95
February 14	....	.90
March 2	....	.85
March 10	....	.80
March 16	....	.85
April 9	....	.80
April 15	....	.70
May 9	....	.85
May 15	....	.90
May 20	....	.95
June 1	....	1.00
June 9	....	1.05
July 8	....	1.00
July 15	1.75	.90
July 18	....	1.50
July 22	....	1.10
August 2	1.25	1.05
August 7	....	1.15
August 14	....	1.25
August 25	....	1.20
September 1	....	1.15
September 15	....	1.10
September 24	....	1.05
October 1	....	1.10
October 10	....	1.05
November 1	....	1.00
November 8	....	.90
November 22 (35-36.9°)	1.40	....
1923—		
January 5	....	.95
January 13	1.50	....
January 17	1.60	1.00
January 27	1.70	....
February 2	1.80	....
February 10	1.90	....
February 15	....	1.05
February 17	2.00	....
April 8	....	1.10
April 14	....	1.15
April 23	1.80	....
May 2	1.80	....
May 5	1.70	1.05
May 12	1.60	....
June 2	....	1.00
June 19	....	.90
July 15	....	.85
July 31	....	.90
July 26	....	.92½
August 1	....	.90
August 6	....	.92½
August 12	....	.95
August 27	....	.90
September 9	....	.80
September 19 (33.39.9°)	1.30	....
October 5	....	.77½
November 8	1.00	....
November 10	....	.75
December 1	....	.70
December 7	....	.75
December 14	....	.80
December 21	....	.85
December 29	....	.90
1924—		
January 8	....	.95
January 9 (33-35.9°)	1.25	....
January 15	....	1.10
January 19	1.40	....
January 22	....	1.15
February 2	1.60	....
February 5	....	1.25
February 12	....	1.17½
February 19	....	1.10
March 4	....	1.07½
March 8	1.75	....
March 11	....	1.05
April 1	....	1.02½
April 15	....	1.00
April 22	....	.95
April 29	....	.87½
May 6	....	.85
May 20	....	.92½
May 27	....	.77½
June 3	....	.75
June 10	....	.72½
June 17	....	.75
June 24	....	.80
July 1	....	.77½
July 17 (33° and above)	1.75	....
July 22	....	.75
July 28	1.50	....

tion of one plant each in the district, one at Gladewater and the latter at Longview. Several other small companies are contemplating the building of plants at various points in the field.

The following is a list of the refineries now in operation in the district: East Texas Refining Co. at Longview, capacity 12,000 bbls. daily; East Texas Refining Co. at Friars Switch on the I. & G. N. Railroad, capacity 6,000 bbls. daily; Beacon Oil & Refining Co., 2½ miles northwest of Henderson on the I. & G. N. Railroad, capacity 2,500 bbls. daily; Boone Refining Co., 1 mile east of Arp, capacity 600 bbls. daily; Overton Refining Co., Overton, capacity 3,000 bbls. daily; Slack Refining Co., Camps Switch, T. & P. Railroad, capacity 2,000 bbls. daily; Arrow Refining Co. plant, Overton, capacity 2,500 bbls. daily. The Taylor Refining Co. will soon commence operations on its 15,000-bbl. plant at Tyler, construction being almost completed.

The Bell Oil & Gas Co. of Tulsa is starting construction on a 10,000-bbl. plant at Longview, and the Sinclair Oil & Gas Co. will build a plant at Longview, reported to be around 6,000 bbls. capacity. The Humble Oil & Refining Co. has been seeking a location for a plant to be located at Gladewater, capacity not reported.

Field Gathering Systems

The following is a list of field gathering lines and lines to loading racks that have been laid in the three producing areas in Gregg, Rusk, Smith and Upshur Counties during the past six months:

American Petroleum Co., 8 miles of 6-inch line from Kilgore Field to Reeds Switch on I. & G. N. Railroad.

Arkansas Fuel Oil Co., 3 miles of 6-inch line from Lathrop area to T. & P. Railroad at Willow Springs.

Atlas Pipe Line Co., 10 miles of 8-inch line from Kilgore Field to Footes Station on I. & G. N. Railroad.

Beacon Oil & Refining Co., one 4-inch and one 6-inch line to the company's refinery on I. & G. N. Railroad near Henderson from the Joiner area.

British-American Oil Production Co., line from Kilgore area to loading rack near Overton on I. & G. N. Railroad.

Butler & Calhoun, 6-inch line from Joiner area to Overton.

Burton Drilling Co., 4-inch line from Kilgore area to I. & G. N. Railroad, Kilgore.

Boone Refining Co., 5 miles of 4-inch line from Joiner Pool to refinery east of Arp.

Central Pipe Line Co., 6-inch line from Joiner Pool to Overton.

Cherokee Chief Oil Co., 4-inch line from Lathrop area to loading rack at Gladewater on T. & P. Railroad.

Crown Pipe Line Co., 6-inch line from Joiner area to loading rack at Friars Switch on I. & G. N. Railroad.

Cranfill & Reynolds, 4, 6 and 8-inch gathering lines and lines to loading racks in Joiner, Kilgore and Lathrop areas.

C. & P. Pipe Line Co., 4-inch to Friars Switch on I. & G. N. Railroad near Henderson.

East Texas Refining Co., 4 and 6-inch line from Kilgore and Lathrop areas to refinery and loading rack on Santa Fe Railroad at Longview.

F. & M. Oil Co., 6-inch line from Lathrop area to loading rack on T. & P. Railroad near Camps Switch.

Gulf Coast Pipe Line Co., 4-inch line to loading rack at Friars Switch on I. & G. N. Railroad from Joiner area. Nat Hunter Oil Co. is taking over this line.

Houston Oil Co., 4-inch from Kilgore area to loading rack on I. & G. N. Railroad west of Kilgore.

Houston Oil Co., 6-inch line from Kilgore area to Amigo Switch on Cotton Belt Railroad.

Humble Oil & Refining Co., 4 and 6-inch lines out of Kilgore area to loading rack on I. & G. N. Railroad west of Kilgore.

Illinois Pipe Line Co., 6-inch line from Kilgore area to Camps Switch on T. & P. Railroad.

Illinois Pipe Line Co., combination 4, 7 and 6-inch line from Kilgore to Camps Switch on T. & P. Railroad.

Independent Pipe Line Co., combination 4, 7 and 6-inch line from Lathrop area to Camps Switch on T.&P. Railroad.

Independent Oil Supply Co., 4-inch line from Joiner area to Overton.

Indian State Oil Co., line out of Kilgore Pool to loading rack at Kilgore.

Inland Waterways Pipe Line Co., two 4-inch lines out of Joiner area to Friars Switch on I. & G. N. Railroad.

Macmillan Petroleum Corp., 4-inch line out of Lathrop area to loading rack on T. & P. Railroad at Willow Springs.

Marine Oil Corp., 4-inch line out of Kilgore Pool to loading rack on I. & G. N. Railroad at Kilgore.

Mid-Kansas Oil & Gas Co., 6-inch line from Joiner Pool to Arp on I. & G. N. Railroad.

Oriental Oil Co., 4-inch line out of Kilgore area to loading rack near Kilgore.

Panola Pipe Line Co., 4 and 6-inch lines out of Joiner area to loading rack at Friars Switch on I. & G. N. Railroad.

Petroleum Marketing Corp. (Warner-Quinlan), 6-inch line out of Joiner Pool to a loading rack at Friars Switch.

Sabine Pipe Line Co., 4-inch line out of the Kilgore area to Reeds Switch on the main line of the I. & G. N. Railroad.

Shell Pipe Line Co., combination 4 and 6-inch line out of the Lathrop area to loading rack at Camps Switch on the T. & P. Railroad.

Shell Pipe Line Co., combination 6 and 8-inch line from the Kilgore area to loading rack east of Kilgore.

Simms Oil Co., combination 4 and 6-inch line from Lathrop area to loading rack on T. & P. Railroad at Willow Springs.

Sinclair-Texas Pipe Line Co., 6-inch from Joiner area to Friars Switch; 6-inch out of Kilgore area to loading rack near Kilgore; 6-inch line from Joiner area to loading rack between Arp and Troup on I. & G. N. Railroad.

Slack Petroleum Co., 4-inch line out of Lathrop area to Camps Switch.

Stanolind Oil & Gas Co., 6-inch line out of Kilgore area to loading rack near Kilgore.

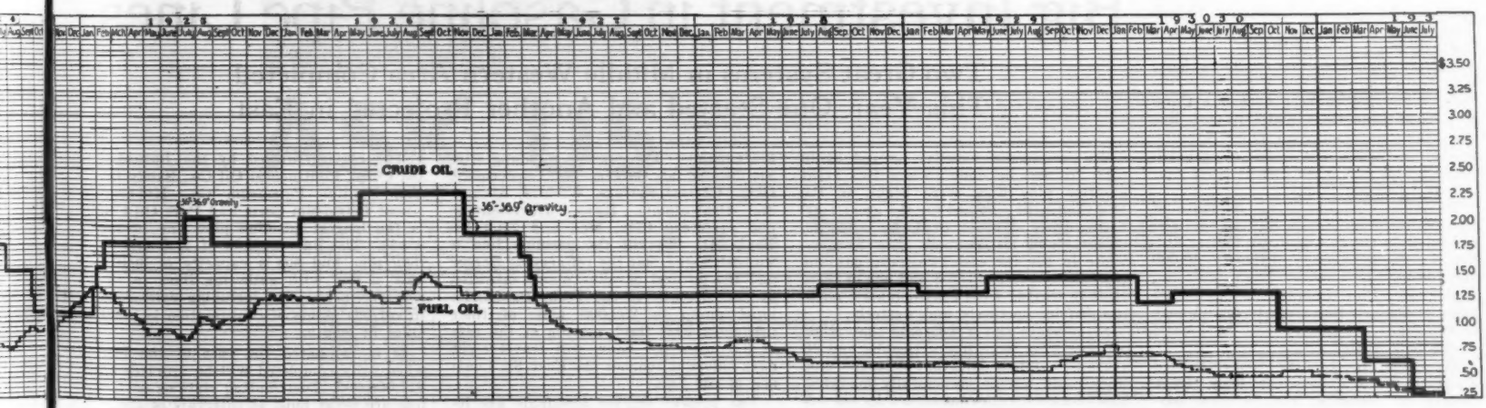
Sun Oil Co., 6-inch line out of Kilgore area to loading rack near Kilgore.

Texas Pacific Coal & Oil Co., 4-inch line out of Gladewater area to loading rack on T. & P. Railroad east of Gladewater.

Texas Unity Oil Co., 4-inch line out of Kilgore area to loading rack near Kilgore.

Tidal Refining Co., 6-inch line out of Joiner area connecting main line of Magnolia Pipe Line Co. running from Gregg

UDE OIL AND FUEL OIL FROM JANUARY 1, 1918, TO JULY 1, 1931



August 5	....	.72½
August 12	....	.75
August 19	....	.80
August 26	....	.86
September 2	....	.90
September 16	....	.95
September 17	1.25	....
September 27 (33-35.9°)	1.10	....
September 30	....	.92½
October 7	....	.90
October 21	....	.92½
October 28	....	.95
November 4	....	1.00
November 18	....	1.05
December 2	....	1.15
December 9	....	1.17½
December 30	....	1.35
1925—		
January 6	....	1.27½
January 13	....	1.30
January 20	....	1.32½
January 22	1.35	....
January 27	....	1.35
January 30	1.55	....
February 10	....	1.32½
February 12	1.30	....
February 17	....	1.30
March 3	....	1.20
March 17	....	1.12½
March 24	....	1.10
April 14	....	1.05
April 21	....	1.02½
April 28	....	.95
June 16	....	.92½
June 23	....	.90
June 30	....	.87½
July 7	....	.85
July 10 (30-36.9°)	2.04	....
July 14	....	.87½
July 21	....	.92½
July 28	....	1.00
August 4	....	1.07½
August 18	....	1.05
August 25	....	1.00
August 27	1.79	....
September 1	....	.97½
September 8	....	1.02½
September 15	....	1.05
October 27	....	1.07½
November 3	....	1.12½
November 10	....	1.20
November 17	....	1.25
December 8	....	1.27½
December 15	....	1.25
December 29	....	1.27½
1926—		
January 5	....	1.25
January 12	....	1.27½
January 19	....	1.25
January 26	....	1.20
February 1	2.04	....
February 2	....	1.25
February 15	....	1.22½
March 16	....	1.25
March 23	....	1.30
March 30	....	1.35
April 13	....	1.40
May 11	....	1.35
May 15	2.29	....
May 25	....	1.30
June 1	....	1.27½
June 15	....	1.25
June 22	....	1.20
July 20	....	1.25
July 27	....	1.30
August 17	....	1.37½
August 24	....	1.42½
August 31	....	1.45
September 7	....	1.47½
September 14	....	1.45
September 21	....	1.40
September 28	....	1.37½
October 5	....	1.35
November 9	....	1.27½
November 17	1.90	....
December 7	....	1.30
December 28	....	1.37½
1927—		
January 1	....	1.27½
February 8	....	1.25
February 22	1.67	1.25
March 5	1.47	....
March 8	....	1.25
March 12	1.28	....
March 15	....	1.22½
March 22	....	1.17½
April 5	....	1.12½
April 12	....	1.02½
April 19	....	.97½
May 3	....	.95
May 17	....	.92½
June 7	....	.90
July 26	....	.87½
August 2	....	.85
August 16	....	.80
October 4	....	.77½
November 22	....	.75
1928—		
February 14	....	.77½
February 21	....	.80
February 28	....	.82½
April 24	....	.80
May 1	....	.75
May 8	....	.72½
May 29	....	.70
June 12	....	.67½
June 19	....	.62½
July 17	....	.60
July 27	1.36	.60
October 16	....	.55
1929—		
January 25	1.20	.55
February 26	....	.60
March 5	....	.57½
April 16	....	.55
May 14	....	.52½
May 20	1.45	.52½
June 4	....	.55
July 9	....	.50
September 10	....	.55
September 24	....	.60
October 15	....	.62½
October 22	....	.65
November 12	....	.67½
December 10	....	.75
1930—		
January 1	1.45	.75
February 15	1.20	....
March 11	....	.70
April 1	....	.65
April 10	1.29	....
April 15	....	.60
April 29	....	.57½
May 13	....	.55
June 10	....	.52½
June 24	....	.50
July 15	....	.47½
October 25	.95	....
October 28	....	.52½
November 11	....	.50
December 16	....	.47½
1931—		
February 10	....	.45
February 17	....	.42½
March 5	.59	....
March 31	....	.40
April 7	....	.37½
May 12	....	.35
May 26	....	.32½
June 1	.33	....
June 2	....	.30
June 16	....	.27½

County to Center Station in Shelby County. The Tidal lateral is approximately 30 miles long.

Tyler Pipe Line Co., combination 6 and 8-inch line out of the Kilgore and Joiner areas, connecting at Overton, thence to loading rack on the Cotton Belt, and to Taylor Refining Co. at Tyler.

Vacuum Oil Co., 4-inch line out of Lathrop area to Camps Switch on T. & P. Railroad.

Woodley Petroleum Co., 4-inch line out of Kilgore area to loading rack near Kilgore.

Bell Oil & Gas Co. is purchasing 7 miles of 6-inch pipe to connect with loading rack on I. & G. N. Railroad south of Longview where the company is to erect a refinery.

Main Trunk Lines

The following is a summary of the main trunk lines out of the district:

Arkansas Pipe Line Co., 66 miles of 8-inch line out of the Lathrop area, Gregg County, to Shreveport, capacity 30,000 bbls. per day.

Atlas Pipe Line Co., 57 miles of 8-inch out of Gregg County, south of Longview, to Shreveport, capacity 30,000 bbls. daily.

Gulf Pipe Line Co., 17 miles of 6 and 8-inch lateral lines connecting to Oklahoma-Gulf Coast trunk line at Overton. Laterals serve Joiner and Kilgore areas; capacity of trunk line 45,000 bbls. daily.

Humble Pipe Line Co., from Joiner and Kilgore areas to Todd Station in Boggy Creek Field. Size of line is 8-inch and capacity is 45,000 bbls. per day. The company is now looping the entire distance of the line with 8-inch pipe.

Humble Pipe Line Co., 8-inch lateral from Kilgore area connecting with the company's Van-Louisiana 10-inch trunk line south of Longview. Capacity is 25,000 bbls. daily.

Humble Pipe Line Co. is now constructing a 10-inch line from Longview to Moores Station in Louisiana. This line will parallel the Van-Louisiana 10-inch line. Capacity will be 50,000 bbls. and line will be 65 miles in length.

Liberty Pipe Line Co. (Mills-Bennett) is laying 45 miles of 8-inch line from the Kilgore area to connect with the Pure-Van Pipe Line Co.'s main 10-inch line from the Van Pool, Van Zandt County, to Smiths Bluff. The 8-inch lateral will connect with this main line at Rusk Station in Cherokee County.

Magnolia Pipe Line Co.'s 59 miles of 10-inch line from Norris Station south of Longview in Gregg County to Center Station in Shelby County, capacity 40,000 bbls. daily.

Magnolia Pipe Line Co. is laying 95 miles of 12-inch line from Gregg County to Corsicana. Capacity will be around 50,000 bbls. daily.

The Shell Pipe Line Co. has completed a survey for a 10-inch line from Gregg County to Houston, and is now purchasing right of way for this line which will have a capacity of around 50,000 bbls. per day.

Sinclair-Texas Pipe Line Co. is constructing 129 miles of 12-inch line out of Gregg and Rusk County to connect with the Prairie Pipe Line Co.'s main line at Colonels Station in Freestone County. The Prairie line runs both north and south from that station.

The Sun Pipe Line Co. and Yount-Lee Pipe Line Co. (the latter being recently organized and chartered) are laying 190 miles of 10-inch line from Gregg County to Beaumont. Capacity of the line will be around 45,000 bbls. per day.

The Texas Pipe Line Co. has a 10-inch line out of Gregg and Rusk Counties connecting with the company's main 8-inch line at Douglass Station in Nacogdoches County. Length of this line is 62 miles, capacity 30,000 bbls. per day.

Much Loading Rack Construction

Tank cars were the first methods of transporting crude oil out of the East Texas district, and as more short pipe lines were completed into the three producing areas to take out the oil, tank car loading racks were erected on the various railroads in the district, connecting to these lines. Practically all of these loading racks were busy every day, loading out oil to capacity, although the advent of the trunk pipe lines into the district has cut down the daily tank car shipments from around 200,000 bbls. per day, as it was during the peak of such shipments, to around 130,000 bbls. per day at the close of June.

More trunk lines are being laid into the district, with the possibility of two others going in, consequently but few more loading racks will be constructed for shipping out oil unless various independent operators lay their own gathering lines into the fields and build their own loading racks to serve their individual leases, as has been done in many cases already. In case the fields are not curtailed, other racks will be constructed, but if the operators and companies cooperate in curtailing production, or the State is given police power to force curtailment, other racks will be useless, the companies owning trunk lines being compelled by the pipe line bill to take equitably from all leases in the area to which they have gathering lines, thereby doing away with the necessity of producers laying their own gathering lines and lines to loading racks.

The railroads serving the district which are getting the bulk of the tank car shipments are: The main line of the International and Great Northern, the branch line of the same road which connects with the main line at Overton, from Henderson; the Atchison, Topeka & Santa Fe at Longview; the Texas & Pacific Railroad from Longview to Gladewater, and the Cotton Belt over which oil is shipped from Tyler, and from Amigo Switch.

Between Longview and Gladewater in Gregg County the following loading racks are located: Arkansas Fuel Oil Co., 44-car rack at Willow Springs; Cherokee Chief Oil Co., 25-car rack at Gladewater; Cranfill & Reynolds, 50-car rack at Willow Springs; same company's 660-car rack at Longview Junction; Independent Pipe Line Co. (Pilot Oil Co.), 50-car rack at Willow Springs; Illinois Pipe Line Co., 50-car rack at Camps Switch; F. & M. Oil Co., 50-car rack at Camps Switch; Lucey Petroleum Co., 25-car rack at Camps Switch; Macmillan Petroleum Corp., 40-car rack at Willow Springs; Shell Pipe Line Co., 30-car rack at Camps Switch; Simms Oil Co., 30-car rack at Willow Springs; Sun Oil Co., 50-car rack west of Camps Switch near Lake Lavernia; Texas Pacific Coal & Oil Co., 15-car rack east of Gladewater; Vacuum Oil Co., 40-car rack at Camps Switch; Slack Petroleum Co., 8-car rack at refinery at Camps Switch.

On main line of I. & G. N. Railroad between Longview and Troup, the following loading racks are located: Central Refining Co., 25-car rack at Overton; Burton Drilling Co., 25-car rack at Kilgore; Butler & Calhoun, 18-car rack at Overton; Indian State Oil Co., 25-car rack at Kilgore; Independent Oil Supply Co., 16-car rack at Overton; Humble Oil & Refining Co., 90-car rack at Kilgore; Atlas Pipe Line Co., 70-car rack at Footes Switch; Cranfill & Reynolds, 50-car rack at Footes Switch; East Texas Refining Co., 75-car rack at Longview; Marine Oil Corp., 40-car rack at Kilgore; Houston Oil Co., 70-car rack at Kilgore; British-American Oil Co., 50-car rack at Kilgore; Republic Production Co. (American Petroleum Co.), 50-car rack at Reeds Switch; Sabine Pipe Line Co., 50-car rack at Reeds Switch; Sinclair-Texas Pipe Line Co., 65-car rack at Kilgore; Shell Pipe Line Co., 50-car rack at Kilgore; Stanolind Oil & Gas Co., 50-car rack at Kilgore; Texas Unity Oil Co., 50-car rack at Kilgore; Sun Oil Co., 30-car rack at Kilgore; Oriental Oil Co., 10-car rack at Kilgore; Woodley Petroleum Co., 30-car rack at Kilgore; Mid-Kansas Oil & Gas Co., 36-car rack at Arp; Sinclair-Texas Pipe Line Co., 18-car rack near Troup.

The Taylor Refining Co. has a 60-car rack at its refinery east of Tyler. This rack has been loading out oil for the Tyler Pipe Line Co., which has a combination 6 and 8-inch line from the Kilgore and Joiner areas. The Houston Oil Co. has a 40-car rack at Amigo Switch on the Cotton Belt.

On the branch line of the I. & G. N. Railroad between Overton and Henderson, the following loading racks are located: Crown Pipe Line Co., 30-car rack, Friars Switch; Beacon Oil & Refining Co., 26-car rack north of Henderson; East Texas Refining Co., 35-car rack, Friars Switch; Gulf Coast Pipe Line Co. (Nat Hunter negotiating a deal for this rack), 40-car rack at Friars Switch; Panola Pipe Line Co., 56-car rack at Friars Switch; Inland Waterways Pipe Line Co., 30-car rack at Friars Switch; Petroleum Marketing Co. (Warner-Quinlan), 25-car rack at Friars Switch; Rusk County Pipe Line Co., 36-car rack at Friars Switch; Sinclair-Texas Pipe Line Co., 40-car rack at Friars Switch.

The following refineries are now in operation in East Texas: Beacon Oil & Refining Co., 3,000-bbl. plant north of Henderson on the branch line of the I. & G. N. Railroad; East Texas Refining Co., 6,000-bbl. plant at Friars Switch on the I. & G. N. Railroad, Rusk County; East Texas Refining Co., 12,000-bbl. plant on the Santa Fe Railroad east of Longview; Boone Refining Co., 600-bbl. plant east of Arp (not located on any railroad); Overton Refining Co., 3,000-bbl. plant at

Big Investment in Gasoline Pipe Lines

Two Great Systems in Middle Western Area Completed This Year, One Started and Another Projected in East

The petroleum industry proved again that "it can be done" when two great gasoline pipe lines were begun in the Mid-Continent destined for the great marketing areas of which St. Louis, Chicago, Omaha and Minneapolis are centers, while in the far east two more gasoline pipe lines were projected and one of them already started from Philadelphia's refining district northerly and westerly.

Sixty years ago it was said that crude oil pipe lines were impracticable, and 40 years ago it was said that kerosene pipe lines could not be successfully operated. The croakers were confounded by the engineers connected with the transportation end of the oil industry, as the crude pipe lines and a long kerosene line proved their usefulness. For many years it was considered that transporting gasoline long distances in pipe lines was questionable, but again the pipe line engineers won the argument and oil companies invested large sums of capital in such projects.

Gasoline Lines

At the close of June, the Phillips Petroleum Co.'s gasoline line from Borger, Tex., to East St. Louis, Ill., a distance of approximately 740 miles, was nearing completion. It will cost around $15,000,000. The construction work on the line has been underway during the past 18 months. The company started the experimental work over three years ago to determine the feasibility of transporting nonviscous liquids through pipe lines. After a careful investigation it was decided to construct the pipe line.

Further investigations disclosed that it was possible to ship separate consignments of different kinds of gasoline, straightrun gasoline, cracked gasoline and natural gasoline to any point along the 740-mile pipe line.

There are nine pumping stations along the right of way and the plans include specifications for six additional stations which will be constructed when the market expands. The present pumping sites are located at Borger, Tex., Speermore, Okla., Crystal Springs, Wichita, Aikman and Osawatomie, Kans., Harrisonville and Jefferson City, Mo., and East St. Louis, Ill. To fill the gasoline line it was estimated that the refinery at Borger and the natural gasoline plants operated by the company in the Texas Panhandle must pump in 232,000 bbls. of their products. This fluid, moving at the rate of 3.5 miles per hour, will travel eight days before it reaches the East St. Louis end of the line.

The present market terminals are located at Wichita, Kans., Kansas City, Mo., and East St. Louis, Ill. The company plans to use trucks to supply the intermediate points until increased operations show the need for more bulk plants. The river transportation facilities open at the East St. Louis end of the pipe line, giving the company the chance of expanding as far north as St. Paul, Minn., and south to Memphis, Tenn., and New Orleans, La., and east to Louisville, Cincinnati and Pittsburgh. The company has approximately 10,000 outlets in the territory covered by the pipe line.

Great Lakes Pipe Line

The Great Lakes Pipe Line Co. completed its 6-inch extension line the first part of July from Des Moines to Chicago, and preparations were being made to slug the line with gasoline. At the present time the company is running gasoline through its main line, which was completed earlier in the year, from Barnsdall, Okla., by the way of Kansas City as far as Des Moines, Iowa. Construction work on the other line, which will extend from Des Moines north to Minneapolis and St. Paul, Minn., and to Council Bluffs, Iowa, and Omaha, Neb., was completed in July and likewise the extension from Chicago to Milwaukee.

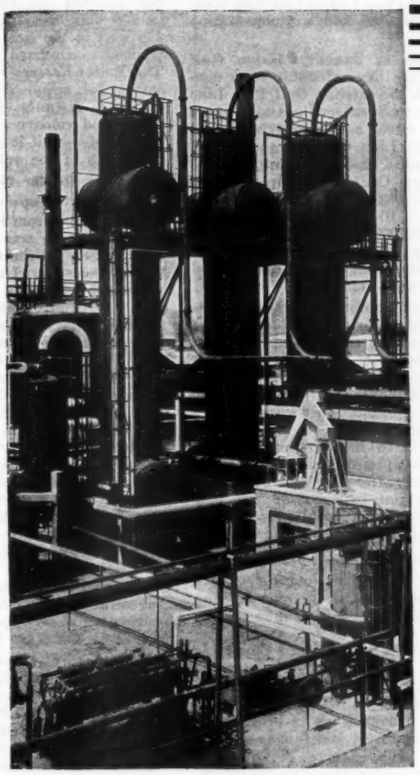
The carrier, owned by the Barnsdall Oil Corp., Continental Oil Co., Skelly Oil Co., Phillips Petroleum Co., Mid-Continent Petroleum Corp. and Pure Oil Co., is the longest gasoline pipe line in the world. The line consists of 4, 6 and 8-inch pipe and has a capacity of 30,000 bbls. a day with gathering lines to various refineries and including extensions to various points of consumption is 1,400 miles in length.

It is estimated the cost of the line when fully completed will be upwards of $17,000,000. Distributing stations on the line are being built at intervals of about 60 miles. At these points gasoline will be drawn off and distributed by trucks and trailers to points within a radius of 50 miles on both sides of the line.

Eastern Lines

The Keystone Pipe Line Co., a subsidiary of the Atlantic Refining Co., has been incorporated to build and operate proposed gasoline carriers from their Point Breeze, Pa., plant via Lebanon, Reading, Allentown and Scranton to the New York State line and westward to include Lancaster, Pittsburgh and Franklin, at which city their Eclipse works is located. It is reported that 475 miles of line will be built.

The Sun Oil Co., through its subsidiary, the Susquehanna Pipe Line Co., has completed its gasoline system to Cleveland, Ohio. From Marcus Hook this line follows closely the route of the old Crescent Pipe Line Co. to a delivery point in the neighborhood of Pittsburgh and thence west through Ohio to Cleveland. The line has a daily capacity of 15,000 bbls. The northern branch is expected to be finished sometime in August, and the connecting system, the Sun Pipe Line Co., also soon to be finished, will deliver gasoline from Marcus Hook to Syracuse, N. Y., and delivery points en route.



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Overton; Arrow Refining Co., 2,500-bbl. plant at Overton; Slack Refining Co., 2,500-bbl. plant at Camps Switch on the T. & P. Railroad in Gregg County.

The Taylor Refining Co.'s 15,000-bbl. plant will be in operation within a short time. This plant is located at Tyler, and will obtain its crude supply from the combination 6 and 8-inch line of the Tyler Pipe Line Co.

J. B. Wrather, president of the Amarillo Producers & Refiners Corp., owner of the Overton refinery, and associates are starting construction of a 1,500-bbl. plant at Kilgore. The Bell Oil & Gas Co. has proposed constructing a 10,000-bbl. plant just south of Longview on the I. & G. N. Railroad. H. L. Lockhart and associates are building a 300-bbl. plant at Gladewater. The Globe Oil & Refining Co. has considered constructing a plant at Kilgore, and the Indian State Oil Co. is also considering constructing a plant at that place. The Central Refining Co. is building a 7,500-bbl. plant on the I. & G. N. Railroad near Friars Switch in Rusk County, and the All States Refining Co. a 3,000-bbl. plant on the same railroad at Overton.

In Shreveport Area

Only two pipe lines were constructed in North Louisiana during the first half of 1931, both extending from Shreveport to the East Texas fields.

The first part of May saw the completion of the Arkansas Pipe Line Corp.'s 8-inch line from Shreveport to Longview, Tex. The line which is acetylene welded is 70 miles in length and has a daily capacity of 30,000 bbls. Work on this line began about April 1, progressing in remarkable fashion, and on May 4 oil from East Texas was on its way to the two refineries of the company in Shreveport. The line connects with the Louisiana Oil Refining Corp.'s refineries at Gas Center and Bossier City and the Ardis tank farm of The Texas Company, from where connection is made with Port Arthur, Tex., by means of a joint pipe line tariff with The Texas Company. There, the crude is loaded on Cities Service tankers for shipment to the Eastern Seaboard.

In addition to the 70 miles of main lines, 51 miles of gathering lines, ranging from 4 to 8 inches was constructed in the three fields of East Texas. Approximately 16 miles of these gathering lines is 4-inch, 28 miles of 6-inch and 9 miles of 8-inch. These field gathering lines connect with the Caster pump station, which is situated on the Hamilton McNutt Survey, northwest of Longview, after being pumped or gravitated to the nearest booster stations. The booster stations in the field are equipped with electrical pumps, four of which are located in the Lathrop area.

The Casper pump station was named in honor of Judge H. O. Caster of Cities Service Co., of which the operating units in this division are subsidiaries. It is equipped with two Prescott type reciprocating pumps. The 200 horsepower Bruce-McBeth gas engine furnish the power for this station, and two additional electric pumps have been installed since its completion. A midway booster station was erected 3 miles northeast of Scottsville, Tex. This station is electrically equipped and at some time in the near future will be placed under automatic control.

Atlas Line

The Atlas Pipe Line Co. completed an 8-inch electrically welded line from Shreveport to the East Texas fields early in May of this year. The line is 57 miles long, running from the company's tank farm, 2 miles south of Longview, to the plant of the Spartan Refining Co. at Jewella, near Shreveport. The trunk line has a maximum capacity of 25,000 bbls. daily, and was built at a cost of approximately $1,000,000. In addition to the main trunk lines, the company also constructed 31 miles of gathering lines extending into the three pools of the East Texas Field, Joiner, Kilgore and Lathrop. Booster and pump stations were erected as a part of this system at advantageous points.

What is said to be record time was established by the Atlas Pipe Line Co. in building this new line, only 16 working days being required for its construction. The work was under the direction of H. M. Arthur, pipe line superintendent of the company, all of the work being done under his supervision.

Pipe Line Work in Kansas

Oil pipe line construction work was at a minimum during the first half of the year in Kansas and it was May before even a proposed pipe line was mentioned. The line was to be from the wells that were shut in in the western part of Rice, southern Ellsworth and northern Stafford Counties, in the central part of the State. A group of Kansas operators and refiners entered into negotiations which some expect will soon enable them to announce plans for the construction of a pipe line from Wichita in Sedgwick County to the above points.

The proposed line would be an 8-inch, approximately 100 miles long, with the northern terminus near Raymond in Rice County, from which gathering lines would extend north and south to the producing wells.

Companies mentioned as being interested in the project are the Standard Oil Co. of Kansas, Slick, Pryor & Lockhart, the Eldorado Refining Co. and the Vickers Petroleum Co. Such a pipe line would provide an outlet for crude oil produced from what is considered by many to be one of the largest oil areas yet found in the State.

A few wells have been completed in the area that have been estimated to have a potential of 35,000 bbls. a day. These big wells are shut in for the lack of a market outlet. Some of the wells were drilled and completed about 18 months ago and practically no oil has been sold from them. The wells represent an expenditure of approximately $35,000 to $50,000 per well for development.

About a year ago the Prairie Pipe Line Co. built a line into the Raymond area in Rice County. It was in use only a short time when the company withdrew as a purchaser of crude oil on January 1, 1931.

Another pipe line project was announced in June by the White Eagle Oil & Refining Co., a subsidiary of the Standard Oil Co. of New York, from the White Eagle's refinery at Augusta in Butler County to the Ritz-Canton area in McPherson County. The construction of the line commenced around the first of July and it is expected to be completed about the first of September.

It will be approximately 70 miles long and it was estimated it would cost $500,000. The right of way for the 6-inch line was surveyed and the route, according to the survey, will be directly south from the Ritz-Canton Pool, passing east of Moundridge in northern Harvey County, south to the Valley Center Pool in Sedgwick County, where it will connect with a line now in operation which runs east to the company's tank farm which is located about 5 miles north of the Augusta refinery.

The Texas Company's first pipe line in Kansas was completed February 1 from the Ritz-Canton Pool to the Voshell Pool, in McPherson County. The line was a 4-inch and connects company's leases in the Ritz-Canton area with the Empire Pipe Line Co.'s line in the Voshell Pool. It is 15 miles long and it permits The Texas Company to ship its own oil to the Empire Pipe Line Co.

New Lines in Oklahoma

The first pipe line completed in 1931 in the Oklahoma City Field was the Continental Oil Co.'s new 8-inch which was completed February 1, from the main line system near Tonkawa, in Kay County, to the Oklahoma City Field in Oklahoma County. The company has its own production in the south end of the Oklahoma City Field and the crude oil was transported to the company's refinery at Ponca City. At the time the pipe line was completed only one pipe line station was built, it being at the Oklahoma City end of the line. The pipe line has a capacity of 12,000 bbls. of oil a day, which can be increased with additional pipe line stations.

The Continental Oil Co. laid a 2-inch pipe line to the Reiter-Foster Pool in Payne County, which was handling the crude oil produced in the area. Under the proration plan effective in the area wells were allowed to produce 10 bbls. of oil a day. The pipe line was completed in March. The 2-inch pipe line connects with the company's new 8-inch line from the Oklahoma City Field to Tonkawa, and is located about 2 miles west of the Reiter-Foster Pool. Connection was made with the main line and a pump station erected.

The middle of January Union Gulf Pipe Line Co.'s line extending from connections with the existing Gulf Pipe Line Co. at Tulsa to Spencerville, Ohio, where connections have been made with the Buckeye Pipe Line Co. to transport oil to Toledo and Pittsburgh plants of the Gulf Refining Co., was completed and the pipe line tested and put into operation. It is a 10-inch line with a rated capacity of 35,000 bbls. a day. The Toledo refinery was not completed until March, and the crude oil was not shipped to the plant until that date.

The line is approximately 900 miles long, starting at a point just south of Tulsa and crossing the Mississippi River a few miles south of St. Louis. A branch line is under construction from Dublin, Ind., to Cincinnati, Ohio. From the Buckeye line a connection was made with the Southwest Pennsylvania pipe lines to deliver the oil to the Pittsburgh plant, which was completed and put into operation shortly after the first of February. The initial capacity of the new Pittsburgh plant was 7,000 bbls. a day.

California's New Lines

There were no major crude oil pipe lines laid in California during the first six months of 1931 and there is nothing to indicate that any main trunks will be constructed in the immediate future. The Mountain View Field of Kern County is the only one undergoing development at the present time that may require pipe line facilities before 1931 draws to a close. Development work is progressing very slowly, however, and it may be several months before there is sufficient production to justify pipe line operation. It is quite likely that the Shell will move this oil through the facilities of the Union or General Petroleum companies until such time as it extends the Martinez-Coalinga line southward. The only crude oil pipe line of any consequence laid in California this year was 60 miles of 6-inch seamless steel pipe extending from Belridge to Coalinga, by the Associated Oil Co., and finished and put into operation on April 30, 1931. It is a continuation of the company's Coalinga-Monterey pipe line which extends westward from Coalinga to Monterey on the sea coast approximately 100 miles away. The line from Coalinga to Belridge is routed via Kettleman Hills and Lost Hills and is being used exclusively for the transportation of crude oil from those fields. On March 1, 1931, the Associated started reconditioning work on the Coalinga-Monterey pipe line which was laid in 1904, and during the course of work 22,000 collars were cut out and corroded sections replaced. This installation was of lap weld pipe with screw joints and wherever possible the collars were welded instead of being cut out. The Shell laid approximately 30 miles of new pipe line during June in order to facilitate the transportation of crude oil from Kettleman Hills. This 6-inch line extends from Kettleman Hills to the company's Caliola tank farm at Coalinga. The Kettleman North Dome Association constructed 14 miles of gathering lines from its various wells at Kettleman Hills to a central tank farm, also constructed during the past several months. With the above exceptions, construction of crude oil pipe line in California was practically negligible.

Little Work in Rocky Mountain Area

There were no important oil pipe line projects undertaken in the Rocky Mountain area during the first half of 1931 and only two projects are in sight for the last half of the year. The Continental Oil Co. is making preliminary surveys for a 70-mile oil line from the Greasewood Dome in Weld County, northeastern Colorado, by way of Brighton to its refinery north of Denver. Details as to size of pipe and route have not yet been decided and construction will depend upon the outcome of wells now drilling in the field. The company is drilling two wells on its own acreage and these are expected to reach the objective some time in October. The company has under contract the production, amounting to 350 bbls. daily, from the one producing well in the field, but the oil is being trucked to Orchard and shipped by rail. The Reiter-Foster Oil Co. also has made survey for a line from the field to Orchard, a distance of approximately 12 miles, and construction will await completion of a well it is now drilling 1,000 feet north of the only producer.

On the Gulf Coast

With the exception of trunk systems laid or started from East Texas to coastal terminals, there was very little pipe line construction on the Gulf Coast the first half of the year. Humble Pipe Line Co. completed a 15-mile line of 6-inch pipe from the Moss Bluff Field of southern Liberty County to Barbers Hill, where it tied into that company's line to Baytown. Gulf Pipe Line Co. laid 5½ miles of 6-inch line from the new Lockwood Field, eastern Fort Bend County, to a connection with its Big Creek-Pierce Junction line. Seven miles of the Moss Bluff line, consisting of a stretch through a low section, was put down during 1930 at a time when the section was dry. The line was not completed until this year, pending developments in the Moss Bluff Field, which was kept shut in during 1930. The Texas Pipe Line Co. laid approximately 60 miles of 10-inch loop on its North Louisiana-Port Arthur line between San Augustine and Port Arthur. This was to provide increased capacity in that stretch to take care of East Texas oil.

Two pipe line systems on the Gulf Coast changed ownership. Atlantic Pipe Line Co. early in January purchased the 6-inch line of the Liberty Pipe Line Co. extending from the Barbers Hill Field to Cedar Bayou, a distance of approximately 7 miles. The deal also included the barge loading terminal at Cedar Bayou and storage facilities and terminal at Texas City. Atlantic also purchased the properties of the Gulf Coast Pipe Line Co., which owned two parallel lines, one 6-inch and 4-inch and the other 10-inch, extending from the Refugio Field to deep water at Harbor Island, a distance of 38 miles, a modern terminal at Harbor Island and storage facilities.

Since July 1, however, the Texas Pipe Line Co. has started laying 32 miles of 8-inch line from Houston to Texas City. At Houston, the line will tie into the company's West Texas-Port Arthur system to supply crude to Republic Oil Refining Co.'s new refinery at Texas City, as well as to provide another deep water outlet for other crude carried in the system. That line is being built in conjunction with 28 miles of 6-inch at the other end which will connect the Big Lake Field with The Texas Company system. The Republic Oil Refining Co. will operate on Big Lake crude with the Texas Pipe Line Co. acting as common carrier.

Oil Lines in Kentucky

Stoll Pipe Line Co. started an oil line a short distance east of the town of LeGrande in Hart County, Kentucky, to the company's refinery at Louisville, approximately 80 miles in length, and was nearing completion at the close of the half year.

Simrall Refining Co.'s pipe line running from 1 mile west of LeGrande in Hart County to Horse Cave is a 4-inch line and connects with the company's refinery.

Producers Pipe Line Co.'s line started about one-half mile north of LeGrande and goes to the Louisville-Nashville Railroad at Horse Cave, a distance of approximately 7 miles. It is a 4-inch line.

Operators Pipe Line Co. started about 2 miles north of LeGrande in Hart County to the town of Rowlets, a hamlet on the L. & N. Railroad, a distance of 7 miles. It is a 4-inch line. The oil is being shipped from Rowlets by tank cars.

SIX MONTHS' REVENUE IS 200 MILLION LESS

(Continued from Page 82)

substantial. The average price for all of 1930 is shown as 16.33 cents. The average price over the first six months of 1931 is 13.57 cents. At the average rate of consumption expected over 1931 and assuming the average price for the first six months will be maintained throughout the year, which in itself seems optimistic at this time, the revenue on gasoline alone will approximate $420,000,000 less this year than last year.

Central States Lowest

The lowest average service station price is shown for the central group of states including the Standard Oil Co. of Indiana territory, Ohio, Oklahoma, Texas and Arkansas.

Prices are low in this group because of many factors. Low crude prices in the Mid-Continent area, the ease with which this territory may be served from several major refining points and the relatively high density of population, have all invited extreme competition.

The greatest decline in the average price for the individual areas occurred in the Pacific states group. Here a decline of 3.84 cents is shown in the average since the first of the year, but even this decline does not present the true conditions over the first half of the year. A general advance in the price in the major cities amounting to 5½ cents was posted June 19 by the Standard Oil Co. of California, which accounted for this relatively favorable showing in July.

During the greater part of June the net gasoline station price in San Francisco, for instance, was 8 cents.

The North Atlantic and New England states showed the least decline in prices over the six-month period. The average decline for the group is shown as 1.28 cents, the next smallest decline being 1.92 cents which occurred in the southwestern group of states.

State Gasoline Taxes

The average gasoline tax on July 1 established a new high at 4.06 cents with persistent efforts being made in several states to further advance their levies to equalize the loss in revenue from other sources.

Because the tax may be collected easily and because it yields a quick and constant return, politicians seek to use it as a means of bolstering up the total state revenues. There is a very decided tendency toward diverting the gasoline tax money from the original plans of building roads to that of helping weak schools, paying the overhead expenses of highway departments normally maintained by funds from other sources, for docks, for the building of aviation fields, for sea walls, city streets, and some money last year was even diverted for the propagation of oysters and substantial sums are often spent from these funds, coming under the heading of "various items." The seriousness of such a program is being brought more to the public's attention. There is also developing a stronger effort against further tax increases on the part of the oil industry.

The unfavorable conditions in the oil industry in which the price received by marketers for their gasoline has consistently declined has permitted higher taxes to be imposed without the public witnessing any difference in the outlay of money. Because of this, there will probably be greater resistance against a program or raising prices to a normal at such a time as general conditions in the oil industry are rectified.

Tax Changes

Since the first of the year, the average tax in the 50 cities shown in tabular form here, was raised from 3.82 cents to 4.06 cents. This is accounted for by advances made by eight states. Three of these adopted a tax of 6 cents, the highest now charged in any state. These changes include an advance from 5 to 6 cents in Arkansas March 1, and an advance from 4 to 5 cents in Oklahoma March 26. On April 1 North Carolina advanced its tax from 5 to 6 cents, Wisconsin from 2 to 4 cents and Washington from 3 to 5 cents. On May 1 the Massachusetts tax was raised 1 cent to 3 cents and on May 12 the Utah tax was raised from 3.5 cents to 4 cents. The most recent change was in the advance of the Tennessee tax July 1 from 5 to 6 cents.

On July 1 the supreme court of North Dakota rendered a decision to the effect that the referendum petitions filed with the Secretary of State were valid and effectively suspended the proposed increase of the gasoline tax from 3 to 4 cents. Consequently the tax in North Dakota remains at 3 cents; the proposal for an increase will be submitted to the voters at the general election in 1932.

TREND OF GASOLINE SERVICE STATION PRICES

AVERAGE SERVICE STATION PRICES IN CENTS IN 50 REPRESENTATIVE CITIES, EXCLUSIVE OF TAXES

	1924	1925	1926	1927	1928	1929	1930	1931
January 1	16.89	16.45	18.82	20.35	16.41	18.32	17.23	14.56
February 1	20.20	19.37	18.91	20.16	16.38	17.59	16.96	14.83
March 1	20.67	21.70	19.89	19.63	16.80	17.21	16.38	14.36
April 1	21.45	21.30	21.14	18.79	17.16	17.38	15.92	13.68
May 1	21.48	20.99	21.13	17.97	17.47	17.48	16.95	12.40
June 1	21.28	20.74	22.13	17.25	17.56	18.32	17.01	12.21
July 1	20.42	21.99	22.22	17.38	17.56	18.48	16.56	12.46
August 1	19.19	22.02	22.19	17.39	18.12	18.22	16.47	.....
September 1	18.45	19.45	22.09	17.13	18.40	18.22	16.26	.....
October 1	16.52	18.41	21.58	16.81	18.70	18.32	15.93	.....
November 1	16.29	18.20	20.58	16.72	18.05	17.84	15.41	.....
December 1	16.41	18.45	20.10	16.71	18.39	17.51	14.96	.....
Average	19.10	19.92	20.92	18.01	17.63	17.91	16.33	13.57

COMPARISON OF NET SERVICE STATION PRICES JANUARY 1 AND JULY 1, 1931, ACCORDING TO GEOGRAPHIC GROUPINGS

Atlantic and New England States	Jan. 1	July 1
Augusta, Me.	14.8	14.8
Manchester, N. H.	14.4	14.4
Burlington, Vt.	15.3	15.3
Hartford, Conn.	17.5	14.5
Springfield, Mass.	14.9	14.5
New York, N. Y.	13.3	13.3
Philadelphia, Pa.	19.0	13.0
Providence, R. I.	12.7	12.5
Newark, N. J.	12.5	11.7
Baltimore, Md.	12.2	11.4
Dover, Del	16.0	13.0
Average	14.78	13.50
Decrease	1.28	

Central	Jan. 1	July 1
Fargo, N. D.	16.9	12.9
Huron, S. D.	13.5	12.3
Wichita, Kans.	10.8	9.8
Omaha, Neb.	14.25	8.9
Tulsa, Okla.	13.0	8.0
Dallas, Tex.	13.0	12.0
Little Rock, Ark.	13.0	10.0
Kansas City, Mo.	11.9	10.9
Des Moines, Iowa	12.5	11.5
Duluth, Minn.	14.5	12.5
Milwaukee, Wis.	13.0	11.1
Chicago, Ill.	14.0	11.0
Detroit, Mich.	9.5	11.8
Indianapolis, Ind.	13.9	11.3
Cleveland, Ohio	13.0	12.0
Average	13.12	11.15
Decrease	1.97	

Southeastern	Jan. 1	July 1
Norfolk, Va.	12.8	11.5
Charleston, W. Va.	13.5	12.2
Louisville, Ky.	13.0	12.0
Memphis, Tenn.	14.0	9.0
Atlanta, Ga.	15.0	12.0
Charlotte, N. C.	14.3	11.0
Charleston, S. C.	12.3	11.5
Natchez, Miss.	15.0	15.0
Birmingham, Ala.	14.0	11.0
New Orleans, La.	12.5	10.5
Jacksonville, Fla.	13.0	12.0
Average	13.58	11.66
Decrease	1.92	

Midwestern	Jan. 1	July 1
Helena, Mont.	18.0	18.0
Boise, Idaho	20.5	16.0
Casper, Wyo.	16.0	14.0
Reno, Nev.	22.0	16.5
Salt Lake City, Utah	18.5	13.0
Denver, Colo.	11.0	13.0
Phoenix, Ariz.	19.5	11.0
Albuquerque, N. Mex.	15.0	15.0
Average	17.6	14.56
Decrease	3.0	

Western Coast	Jan. 1	July 1
San Francisco, Calif.	18.5	13.5
Portland, Ore.	16.0	14.0
Seattle, Wash.	18.5	14.0
Average	17.67	13.83
Decrease	3.84	

OVERSUPPLY SLOWS WORK IN OKLAHOMA

(Continued from Page 91)

year in rentals on nonproducing leases. Attempts were made to cut the amount in half by the majority of companies, by rental reductions and lease cancellations.

Companies were attempting to work out a plan for reducing the amount of rentals in wildcat areas where it was believed no development would take place for several years.

Owing to strict proration orders curtailing production in all the flush areas in the State less acreage will be leased in 1931 than in any other year since 1920.

The move to reduce rentals gained favor when a few of the oil companies found the plan to be successful. The general average rental in the past was $1 an acre a year, but efforts were made to reduce the amount to 50 cents and even 25 cents an acre a year. Large blocks of acreage had been secured in the western part of the State since the Oklahoma City Field was found, resulting in enormous expenditures for rentals each year. Major oil companies worked out a uniform plan to present to landowners to reduce the amount of rentals on leases they already own. Where the landowner was not satisfied the lease was cancelled.

The only exception was in Oklahoma County where companies are holding all leases and blocks. There is little likelihood of a wildcat drilling campaign taking place in the area for some time to come. The blocking of acreage in the vicinity of Oklahoma City Field has been in progress since the discovery of oil there, with the exception of a few acres in the northwestern and north-central part of the county, which are reported to have uncertain titles. Little acreage has been released except in the Nicoma Park district, in the Mid-Continent Oil & Gas Co.'s block, where the company drilled three dry holes.

During the first six months of the year it is estimated that a total of approximately 1,000,000 acres has been released in the wildcat areas.

WORLD'S LARGEST OIL FIELD OVERPRODUCED

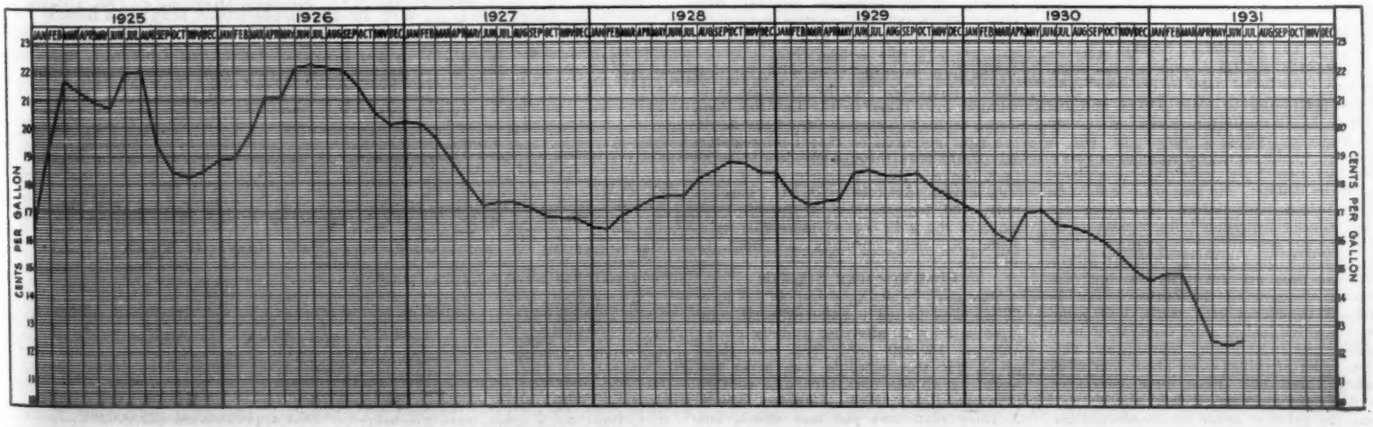
(Continued from Page 86)

natural gasoline plants in the field, and to date not a plant has been proposed by any of the companies. The residue gas coming from the wells is being burned in flambeaus, or permitted to escape into the air through standpipes. The gasoline content of the gas is around 2.72 gallons per 1,000 feet, being higher in some wells and lower in others.

Air Lift Forbidden

Air lift was resorted to by three companies producing in the Joiner Pool, to bring some of their dead wells back on production, and to increase the production of other wells, but the railroad commission issued orders against the

AVERAGE GASOLINE SERVICE STATION PRICES, EXCLUSIVE OF TAXES, BASED ON 50 REPRESENTATIVE CITIES



practice, and at present no air lift plants are in operation, except now and then when pressure is exerted on a well to bring it back on production.

Lack of water for drilling purposes is another problem facing many of the operators and companies drilling in the field, and the cost of drilling auxiliary water wells is another cost which has to be added to the production of the leases. Most of the water wells are drilled to around 650 and 800 feet and cost in the neighborhood of $2,000. Water systems have been laid by the companies to serve their properties, the Humble Oil & Refining Co. having laid the largest system in the field, from the Kilgore area to the Joiner area. Eight-inch pipe was used and motor driven pumps were installed for booster pumps.

Field Defined on Three Sides

The East Texas producing area has been practically defined in all directions except to the north in Upshur County where extension wells may lengthen or may definitely check further production in that county. Production on the western side of that county has already shown salt water, consequently the western limits of Upshur County's producing area is limited. Stanolind Oil & Gas Co. and Weaver's No. 1 Everett, just north of the town of Gladewater, is making 35 per cent salt water, marking a limit in that direction.

National Securities' No. 1 Vernon, west of the Selby Oil & Gas Co.'s No. 1 Snavely, or about 12 miles due south of Gladewater, is a dry hole marking the western limits of that part of Gregg County. The Kilgore area has been checked on the west by water, as has the Smith County producing area, and the southwestern part of the Joiner Pool. The latter area was defined by Sinclair Oil & Gas Co.'s No. 1 Jarvis in the Vargas Survey, which is making water. The southern limit of the pool has not been definitely marked, but a small well was brought in last week extending the field a short distance farther south, and the sand is appearing as if it is pinching out in that direction, and that this area will soon be marked definitely by salt water or a dry hole. The eastern side of the producing area has been defined by dry holes.

The attached report will give an accurate idea as to how production has fallen off in many of the Joiner wells, especially those on the eastern side where the sand is underlain by the Georgetown lime, and where salt water is not encountered, but where the wells fall off from production, and eventually go dead for lack of pressure.

There are only three pumping wells in the Kilgore area, northern Rusk County.

There were 1,220 producers in the district reported up to July 18, and approximately 100 others will be completed by July 30, making a total of around 1,320 producers in the district. The daily average production for the week ending July 17 was 398,169 bbls., total for the week running 2,787,480 bbls. A sum total production for the district, since the discovery well was brought in in the Joiner Pool, up to July 18, is around 37,000,000 bbls. Completions continue to amount to nearly 100 per week in the district, swelling the potential each day and week.

The Legislative Session

With the special session of the legislature now being held to consider some bills pertaining to East Texas and the entire industry in the State, production may be curtailed if some one bill is passed to increase curtailment powers. Several new lines have been completed into the district, and two more are to be constructed immediately, increasing the daily outlet by trunk lines, consequently the major purchasing companies which have trunk lines into the district at the present time are anxiously seeking connections, changing the entire aspect in regard to unconnected wells, and properties which looked as if they might have difficulties in obtaining connections. This new order of things came about last week when three new lines were completed and started running oil from the district, and the price of crude in the district immediately was raised voluntarily from a 12½ and 15-cent level to around a 20 cents per barrel average, giving new hopes to the producers and operators in the district, and giving encouragement to those who would otherwise have had to sacrifice their oil at almost any price to obtain ready cash, badly needed in this district. The crude market was greatly strengthened by the action of the pipe line companies, and instead of the oil possibly dropping to 5 cents per barrel as it appeared two weeks ago, it now begins to look as if it would increase to around 25 cents, and possibly go a little higher. Legislation may help to boost the price also.

Smith County Discovery

To enumerate all of the extension wells in the district as they were completed, proving up more miles and hundreds of acres of production, would be a lengthy process, consequently it may be sufficient to state that the first producer completed in Smith County, extending the Joiner Pool farther west and over into that county, was Guy Lewis' No. 1 Cook, near the Rusk-Smith County line, the latter part of March. Other extension wells, however, had continued to lengthen out the field from east to west, and also to the south, as had wells in the Kilgore and Lathrop areas. Completion of these extension wells resulted in offset wells being drilled and a corresponding clotting of derricks here and there in various parts of the district instead of a systematic development of the field as is generally done in an area of smaller proportions. But the length and breadth of this producing field has caused a great difference in production methods, following no one plan that might have been previously used in some other field.

Selby Oil & Gas Co.'s No. 1 Snavely, in the Tyndale Survey, western Gregg County, was another extension well in the latter part of March due to the fact that it extended the Gregg County Pool several miles west of the East Texas Refining Co.'s No. 1 Fisher in the Castleberry Survey, which had previously been completed as a producer, extending the pool about 3 miles southwest. These were two important extensions to the pool.

Upshur's First Well

Mudge Oil Co.'s No. 1 Richardson in the D. Ferguson Survey was brought in during the forepart of May for the first producer in Upshur County, and another extension to the Lathrop Pool. This producer gave the fourth county in the district production and extended the play farther into the county.

Other extension wells have been completed throughout the areas, tending to connect the three producing pools into one, which is now considered as an established fact, with no intervening dry holes having been drilled to prove otherwise.

First Salt Water Intrusion

The first salt water in any of the producers in the district showed up the middle of April when the Magnolia Petroleum Co.'s No. 1 Florey, and Burton Drilling Co.'s No. 1 Florey in the Peter Holmes Survey, western side of Kilgore Pool, Rusk County, started showing water, and bringing this menace to the attention of the operators for the first time. Since this many other wells have started showing water, as mentioned heretofore in this article.

The first potential tests made for proration purposes, for the railroad commission were taken in the Lathrop Pool, Gregg County, during the middle of April, the first potential of that field registering 62,012 bbls. through eleven-sixteenths inch choke. Rock pressure in the pool was shown to have fallen off considerably, and temperature of the oil from many of the wells was exceptionally high, some of them checking as high as 143° F.

First Proration Schedule

The first proration schedule for East Texas was issued by the railroad commission May 2, allotting a daily allowable of 160,000 bbls. from the three areas, but this schedule was never followed by all the operators, and another plan was later tried, this also failing. A third plan was put into effect, but with some of the companies and operators acquiring injunctions to prevent shutting in their properties it also was considered a failure and a special session of the legislature was then considered the only hope for bringing bills into force to bring about compulsory curtailment in the district.

McMillan Suit

During the forepart of May the McMillan Petroleum Corp. asked for an injunction against the railroad commission to restrain it temporarily and permanently from curtailing production on its leases in Gregg County. This suit was tried in the federal court, and a decision has not yet been handed down by the three federal judges who convened for the hearing, but it is probably the most interesting, and will be the farthest reaching of any injunction suit yet tried in Texas oil history. Denying such an injunction will have great effect on preventing the seeking of other injunctions by operators who desire to flow their wells open, consequently will work to enforce curtailment measures as ordered by the railroad commission.

The greatest number of completed oil wells in the district for any one week was recorded during the week ending July 1 when there were 104 producing wells brought in. The average week's completions will run around 85 producers since the first big batch of wells came in.

Plans for Storing Oil

Cheap oil has started the major companies, and some of the independent operators on steel storage plans for the construction of many big tanks in the district, or on the Gulf Coast to which tank farms the trunk lines will transport the oil for storage. Many 55,000-bbl. and 80,000-bbl. tanks are being cut down in other districts and moved to new farms, or new tanks are being erected. Some of the companies have leased storage where possible, the Humble Oil & Refining Co. having so acquired 1,500,000 bbls. of storage from the Stanolind Oil & Gas Co. at Mexia. A Humble Pipe Line trunk carrier will transport the oil to that farm from Rusk and Gregg Counties.

If the pipe lines continue to compete for oil as they are doing at the present time the scramble will no doubt check steel storage programs, but regardless of the competition, the major purchasers who are participating will have to erect storage to handle the oil purchased, or will have to lease storage for the same purpose.

EAST CENTRAL AND EAST TEXAS
Summary of Completed Work First Six Months of 1931

Completions by Districts

County—	Comp.	Prod.	Abnd.	Gas
Anderson	3	30	2	0
Cherokee	9	0	9	0
Delta	1	0	1	0
Ellis	1	0	1	0
Fannin	2	0	2	0
Gregg	274	385,359	30	0
Grimes	1	0	1	0
Henderson	3	0	3	0
Limestone	5	0	5	0
Nacogdoches	5	0	5	0
Navarro	1	0	1	0
Rains	1	0	1	0
Red River	2	0	2	0
Rusk	631	1,427,765	24	0
Smith	23	18,287	9	0
Upshur	12	889	4	0
Van Zandt	81	238,686	12	7
Walker	1	0	1	0
Total	1,056	2,071,016	113	7

Completions by Month

	Comp.	Prod.	Abnd.	Gas
January	23	76,325	2	1
February	42	120,235	9	1
March	91	262,421	23	1
April	242	1,381,888	29	4
May	286	116,183	31	0
June	372	113,964	19	0
Total	1,056	2,071,016	113	7
Same period '30	134	158,168	67	4
Difference	922	1,912,848	46	3

REPORT SHOWING PUMPING WELLS IN JOINER AREA, RUSK COUNTY

Company, land owner and survey—
Consolidated Oil Co., No. 1 Camp, Juan Ximinez;
Consolidated Oil Co., No. 1 Jobe, Juan Ximinez;
Consolidated Oil Co., No. 3 Jobe, Juan Ximinez;
Consolidated Oil Co., No. 4 Jobe, Juan Ximinez;
C. & P. Oil Co., No. 2 Mayfield-Alford, Juan Ximinez;
Darman (Lively) No. 1 Camp, Juan Ximinez;
H. L. Hunt, No. 1 Ashby, Juan Ximinez;
H. L. Hunt, No. 3 Ashby, Juan Ximinez;
H. L. Hunt, No. 4 Ashby, Juan Ximinez;
H. L. Hunt, No. 5 Ashby, Juan Ximinez;
H. L. Hunt, No. 2 Ashby, Juan Ximinez;
H. L. Hunt, No. 1 Bradford, Juan Ximinez;
H. L. Hunt, No. 2 Bradford, Juan Ximinez;
Joiner and others, No. 1 Bradford, Juan Ximinez;
Moss and Urschell, No. 1 Mayfield-Alford, Juan Ximinez;
Moss and Urschell, No. 2 Mayfield-Alford, Juan Ximinez;
Petroleum Marketing Co., No. 1 Arnold, Juan Ximinez;
Petroleum Marketing Co., No. 1 Frederick, Juan Ximinez;
Phillips and others, No. 1 Alford, Juan Ximinez;
Stroube and Stroube, No. 1 Frederick, Juan Ximinez;
Tidal Oil Co., No. 2 Holland, Juan Ximinez;
Ventura Oil Co., No. 1 Ashby, Juan Ximinez;
Wainwright Oil Co., No. 1 Camp, Juan Ximinez;
Wainwright Oil Co., No. 2 Camp, Juan Ximinez;
West Texas, No. 1 Talley, Juan Ximinez;
West Texas, No. 2 Talley, Juan Ximinez.

Several of these wells pump and flow spasmodically, pumping causing them to be revived and to flow for a few hours after which they are put on the pump again. Gas, steam and Diesel engines and electric motors are used for power on the pumping units. Several of the wells are connected on a central pumping unit such as H. L. Hunt's wells on his Ashby lease in the Ximinez Survey.

REPORT SHOWING WELLS THAT FLOW AFTER BEING AGITATED
Joiner Area, Rusk County

Company, farm name and survey—
G. S. Anderson, No. 1 Frederick, Ximinez;
G. S. Anderson, No. 2 Frederick, Ximinez;
Ball and Malone, No. 1 Bradford, Ximinez;
Etex, No. 1 Bradford, Ximinez;
Fitzsimmons and others, No. 1 Alford, Ximinez;
Foster and Jeffreys, No. 1 Mayfield-Alford, Ximinez;
Foster and Jeffreys, No. 2 Mayfield-Alford, Ximinez;
John Mabee, No. 1 Thrash, Ximinez;
Shaw Oil Co., No. 1 Ashby, Ximinez;
Tidal Oil Co., No. 2 Tolliver (Holland), Ximinez;
Ventura Oil Co., No. 1 Ashby, Ximinez.

Agitation on some of these wells is done with the swab, and on others pumping is used to agitate and start them flowing.

REPORT SHOWING WELLS THAT HAVE GONE DEAD IN JOINER AREA, RUSK COUNTY

Company, land owner and survey—
Consolidated Oil Co., No. 2 Camp, Ximinez;
Consolidated Oil Co., No. 4 Camp, Ximinez;
Consolidated Oil Co., No. 1-B Camp, Ximinez;
Consolidated Oil Co., No. 5 Jobe, Ximinez;
Consolidated Oil Co., No. 6 Jobe, Ximinez;
C. & P. Oil Co., No. 3 Mayfield-Alford, Ximinez;
Deep Rock Oil Co., No. 1 Holland, Ximinez;
East Texas Refining Co., No. 2 Ashby, Ximinez;
East Texas Refining Co., No. 4 Ashby, Ximinez;
East Texas Refining Co., No. 2 Mayfield-Alford, Ximinez;
East Texas Refining Co., No. 3 Mayfield-Alford, Ximinez;
H. W. Elliott, No. 1 Deason, Ximinez;
Elzy, No. 1 Camp, Ximinez;
George Pace, No. 1 Camp, Ximinez;
Federated Oil Co., No. 3 Camp, Ximinez;
Foster and Little, No. 1 Mayfield-Alford, Ximinez;
Foster and Little, No. 2 Mayfield-Alford, Ximinez;
Gibson and Johnson, No. 1 Ashby, Ximinez;
Gilcrease, No. 1 Bradford, Ximinez;
Gilcrease, No. 2 Bradford, Ximinez;
Gilcrease, No. 3 Bradford, Ximinez;
Gilcrease, No. 4 Bradford, Ximinez;
Hammond, No. 1 Camp, Ximinez;
H. L. Hunt, No. 1 Finney, Ximinez;
Lide and others, No. 2 Young, Ximinez;
John Mabee, No. 1 Maxwell, Parker;
Modisette, trustees, No. 1 Deason, Ximinez;
Petroleum Marketing Co., No. 1 Camp, Ximinez;
Robertson Drilling Co., No. 1 Deason, Ximinez;
Rusco Oil Co., No. 1 Bradford, Ximinez;
Shaw Oil Co., No. 2 Ashby, Ximinez;
Rex Loyd, No. 1 Camp, Ximinez;
Thompson and Beene, No. 1 Alford, Ximinez;
Turman Oil Co., No. 1 Young, Ximinez;
Vitek Combs Oil Co., No. 1 Jobe, Ximinez;
Anderson and others, No. 1 Bradford, Ximinez;
G. S. Anderson, No. 1 Frederick, Ximinez;
T. Bass, No. 1-B Young, Ximinez;
Babcock Brothers, No. 2 Camp, Ximinez;
Turman Oil Co., No. 2 Young, Ximinez.

COST OF TEXAS WELL

The Department of Commerce in Washington has estimated the cost of the completion of a well in East Texas at $19,000. Between now and the close of the year it is estimated that a total of 1,500 wells will be drilled in several fields in the eastern part of the state. Total cost to date of wells in that section approximated $28,000,000.

Stop corrosion losses
and reduce tank replacements » » »

PETRO-SEAL—*the neutral separating seal* —protects both oil and metal!

This remarkable new protective coating for oil and gasoline storage tanks, tank cars, and oil tankers has withstood the tests of laboratory and field service.

PETRO-SEAL has been especially developed for the protection of tank interiors by the "world's largest manufacturers of protective coatings." It is neutral in contact with metal, petroleum products, and water. It provides an impervious film between the metal and the oil, preventing electrolysis and the resulting corrosion. It protects the color and quality of oil and prevents deterioration of the metal. Better prices are obtained for oil so protected and tank replacement costs are reduced.

One large oil company coated a panel with PETRO-SEAL and placed it in an agitator tank. After nine months, the coating was still intact—an unusually severe test. Another punched a five gallon bucket full of holes, coated the inside with PETRO-SEAL and let it dry over night, then filled the bucket with oil. The coating held for many months — proof of its tenacity and ability to insulate against corrosion.

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THE SHERWIN-WILLIAMS CO.,
Cleveland, Ohio

Gentlemen: Please send me complete information on PETRO-SEAL.

Name _____

Company _____

Address _____

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CENTRAL WEST FIELDS HAD DULL HALF YEAR

(Continued from Page 110)

CENTRAL OHIO
Completions by District

County—	Comp.	Prod.	Dry	Gas	Abd.
Ashland	29	67	6	12	11
Lorain	20	0	7	13	0
Medina	46	580	15	7	24
Wayne	10	59	2	5	2
Holmes	2	25	2	0	1
Cuyahoga	2	0	1	1	0
Richland	2	0	1	1	0
Knox	6	0	2	4	0
Coshocton	15	131	5	5	5
Summitt	14	0	2	12	0
Licking	13	47	4	7	2
Muskingum	29	544	11	11	7
Athens	31	202	10	18	3
Tuscarawas	7	10	1	5	1
Stark	32	0	2	21	0
Fairfield	7	10	2	4	1
Guernsey	5	32	2	1	2
Belmont	12	0	6	12	0
Lake	1	0	1	0	0
Geauga	2	0	2	0	0
Ashtabula	2	0	0	2	0
Pickaway	1	0	0	1	0
First half '31	286	1,693	85	142	59

INDIANA
Completions by Month

Month—	Comp.	Prod.	Dry	Gas	Oil
January	18	147	11	4	0
February	16	168	4	6	12
March	13	58	5	4	3
April	11	75	6	1	0
May	13	625	10	4	28
June	13	2	7	5	1
First half '31	89	1,075	43	24	44
First half '30	191	1,741	36	21	76
Difference ..	12	666	7	3	32

INDIANA
Completions by District

County—	Comp.	Prod.	Dry	Gas	Abd.
Jay	4	42	1	1	2
Blackford	1	3	0	0	0
Adams	0	0	0	0	4
Delaware	0	0	0	0	17
Randolph	0	0	0	0	3
Huntington	1	100	0	0	7
Gibson	2	0	2	0	0
Pike	12	0	10	2	2
Daviess	7	0	4	3	0
Vigo	5	140	3	0	0
Warrick	3	0	3	0	0
Sullivan	11	2	4	6	0
Spencer	4	110	1	0	0
Perry	11	650	4	0	2
White	1	0	1	0	0
Monroe	7	0	2	5	0
Knox	4	0	3	1	0
Crawford	1	0	0	1	0
Posey	1	0	1	0	0
Madison	2	0	0	2	0
Allen	1	0	0	1	0
Rush	1	0	0	1	0
Hancock	1	0	0	1	0
Vandeburg	7	27	3	0	0
Porter	1	0	1	0	1
Lake	1	0	1	0	0
First half '31	89	1,075	43	24	44

ILLINOIS
Completions by Month

Month—	Comp.	Prod.	Dry	Gas	Abd.
January	6	25	2	0	6
February	8	7	6	1	22
March	5	28	3	0	10
April	0	0	0	0	16
May	3	0	3	0	12
June	4	9	2	0	12
First half '31	26	69	16	1	78
First half '30	115	2,123	47	1	49
Difference ..	89	2,054	31	0	29

ILLINOIS
Completions by District

County—	Comp.	Prod.	Dry	Gas	Abd.
Crawford	10	50	5	1	3
Lawrence	0	0	0	0	41
Wabash	2	8	0	0	1
St. Clair	3	9	6	0	34
Monroe	3	0	3	0	0
Clinton	2	0	2	0	0
Madison	1	2	0	0	0
First half '31	26	69	16	1	78

MISSOURI
Completions by Month

Month—	Comp.	Prod.	Dry	Abd.
January	1	0	1	2
February	1	0	1	0
April	1	0	1	0
First half '31	3	0	3	2

MISSOURI
Completions by District

County—	Comp.	Prod.	Dry	Abd.
St. Louis	3	0	3	0
Arsenal Island	0	0	0	2
First half '31	3	0	3	2

MICHIGAN
Completions by Month

Month—	Comp.	Prod.	Dry	Gas	Oil	Abd.
January	8	600	2	1	3	5
February	14	813	9	1	4	5
March	5	133	1	2	2	2
April	8	490	3	3	3	0
May	9	661	6	1	2	2
June	7	265	3	2	2	6
First half '31	49	2,902	23	10	16	20
First half '30	151	15,773	54	9	88	10
Difference ...	102	12,871	31	1	72	10

MICHIGAN
Completions by District

County—	Comp.	Prod.	Dry	Gas	Oil	Abd.
Muskegon	3	0	3	0	0	20
Isabella	19	2,013	5	4	10	0
Midland	5	865	2	0	3	0
Oceana	1	20	0	0	1	0
Mason	1	0	1	0	0	0
Newaygo	2	0	2	0	0	0
Clare	2	0	1	1	0	0
Missaukee	2	0	0	2	0	0
Monroe	4	4	0	2	2	0
Allegan	2	0	2	0	0	0
Livingston	1	0	1	0	0	0
Washtenaw	2	0	1	1	0	0
Mecosta	2	0	2	0	0	0
Ogemaw	1	0	1	0	0	0
Wexford	1	0	1	0	0	0
First half '31	49	2,902	23	10	16	20

NATURAL GAS INDUSTRY UNDERGOES BIG GROWTH

(Continued from Page 66)

dome, which overlies the Temblor formation, is 25,000 acres, and that the potential production of oil, gasoline and gas from this area is as follows:

Oil (bbls.)	1,675,000,000
Natural gasoline (bbls.)	$25,000,000
Dry gas (cu. ft.)	$7,500,000,000,000

The following shows the production and wastage of natural gas from this field since its discovery in October, 1928:

NATURAL GAS, KETTLEMAN HILLS, SINCE DISCOVERY

	Net production (M.cu.ft.)	Wastage (M.cu.ft.)
1928—		
October	1,020,000	1,020,000
November	1,350,000	1,350,000
December	1,550,000	1,550,000
1929—		
January	1,085,000	1,057,000
February	1,980,000	1,948,290
March	1,985,632	1,634,302
April	2,428,677	2,293,952
May	2,329,635	2,145,997
June	2,303,286	2,109,798
July	2,652,160	2,408,750
August	2,860,401	2,025,385
September	2,699,800	1,142,940
October	7,227,389	4,443,512
November	7,400,565	4,811,914
December	7,792,277	5,378,994
1930—		
January	10,867,908	7,788,511
February	10,120,336	7,926,273
March	10,860,628	8,433,799
April	12,592,719	10,365,616
May	14,338,150	11,685,913
June	13,812,161	11,070,234
July	13,864,899	10,505,759
August	14,307,354	10,077,479
September	14,007,114	9,733,640
October	14,688,646	9,176,648
November	13,966,497	6,790,075
December	13,666,443	5,275,383
1931—		
January	12,781,621	4,654,210
February	10,988,612	4,871,674
March	11,984,914	4,795,662

The capacities of the six lines which will transport gas out of this field are as follows:

Line—	To—	Size (in.)	Capacity million cu.ft./day
P.G.&E. Co. Coast line	North	22–20	75
Stanpac line	North	26–24–22–20	138
So. Cal. line	Fresno	10–8	17
So. Cal. line	South	20	65
Southern Fuel Co.	Long Beach	26	130
San Joaquin Lt. & Power Corp.	Merced	12–8	25

The highest monthly production for the current year was chalked up in February when operators produced 533,248 bbls. of crude oil per day. January, 1931, showed the highest rated potential as conservative figures give the State a potential of 833,189 bbls. per day during that month.

Barnsdall's Discovery

The Barnsdall Oil Co. discovered a new oil field in the Los Alamos section of Santa Barbara County when No. 1 Tognazzini, a wildcat on the Gato Ridge anticline, was completed flowing 1,075 bbls. per day from 2,510 feet on June 25, 1931. This well was subsequently shut in and it is the present intention to refrain from any further drilling at least for the next several months. Additional drilling may be undertaken on adjacent property but this will be due to lease requirements and not because of any desire to develop production. The Shell did not produce any commercial production in the Mountain View Field of Kern County during the first six months of the current year but will probably break into the production column before 1931 draws to a close. The Shell discovered this field in the summer of 1930 but has engaged in exploration work since that time rather than in any attempt to develop commercial production.

Unit Operation

The Kettleman North Dome Association became an operating unit on April 1, 1931, when the Secretary of Interior cancelled the Kettleman agreement which was formulated the year previous. The association assumed actual physical control of all leases and equipment on government acreage in the middle dome and has subsequently completed several excellent producers in addition to killing the Milham Exploration Co.'s discovery well which was showing an excessive gas oil ratio. The association estimates that it will liquidate its organization and development debts in a little over a year although if production is curtailed too severely a longer time will be required. If commercial production is developed in the middle dome at Kettleman Hills, and this appears quite probable, operators are expected to organize another cooperative organization similar to that now functioning in the north dome.

Curtailment

Crude oil curtailment has been an important factor in California during the year to date and operators are committed to maintain this regulatory work at least until January 1, 1932. A change was made in the allowable daily production of the State following an economic survey conducted late in May. This indicated the necessity and advisability of reducing state production to 487,500 bbls. per day from June 1, 1931 to January 1, 1932, and operators ratified the proposal to keep crude oil production within this limitation. The umpires have so far been unable to reduce production below 500,000 bbls. per day and, while the attempt to curtail another 20,000 bbls. per day seems like a hopeless task, this may be accomplished in the near future. Considerable progress has been made, however, and the recent agreement to restrict production of Kettleman Hills to 60,000 bbls. per day removes one of the last stumbling blocks in the attempt to reach the new objective of 487,500 bbls. per day for the State.

RECORD ESTABLISHED ON PACIFIC COAST

(Continued from Page 75)

produced 53,183 bbls. of crude oil during the past six months. The Santa Barbara Mesa Field experienced a revival of work this year and the completion of several new wells resulted in increased production.

Older Fields Consistent

Production at Ventura Avenue, Santa Fe Springs and Elwood was fairly consistent during the first half of 1931 and no great change is anticipated in the next six months. Long Beach, due to decreased drilling and a normal decline, showed a gradual drop and this is expected to become more pronounced in the next six months unless the curve is changed by a resumption of production. The Potrero Field of Los Angeles Basin, after registering a consistent decline for several months, snapped up again in June when the Wilshire Annex Oil Co. finished its No. 1 Country Club flowing 1,350 bbls. per day. The abrupt drop in production at Rosecrans during March, 1931, is attributed to the shutting in of 15 wells by the Barnsdall and Union.

Field Work

There were 167 oil wells finished in California during the first half of 1931 but a check indicates fewer completions during the balance of the year. Drilling operations at Huntington Beach may precipitate a town lot drilling campaign before 1931 draws to a close but the new zone believed to have been discovered by the Superior Oil Co. will require deep drilling with the result that this will not be reflected in production until late this year or early in 1932. Playa Del Rey accounted for 58 of the new wells finished during the year to date, followed by Long Beach with 27, Ventura Avenue with 21 and Kettleman Hills with 11. The 167 new wells completed during the first six months of 1931 showed an aggregate initial daily production of 188,750 bbls. There were 119 drilling wells and 90 former producers abandoned and 150 new rigs erected in the first half of the current year. Drilling operations have registered a substantial decline during the past several months and recent developments indicate a still further decline unless competitive town lot drilling is started at Huntington Beach.

EASTERN FIELDS

(Continued from Page 52)

feet in a test on the Clint Smith farm. In the same section the Mountain Iron & Supply Co. is drilling at 1,500 feet in a test on the Ama Exline farm, and the King Knob Gas Co. about completed at 2,122 feet on the S. Carpenter farm. J. W. Deem and others remain shut down at 300 feet in a test on the W. W. Lawrence farm. In Murphy district no new work is sighted. The rig of C. B. Lewis and others on the W. P. Baker farm is ready for that test.

Active work in Gilmer County about ended with the three completions of the week. McCall and others are drilling their No. 2 on the Fletcher Trout farm in Center district deeper and have reached 2,130 feet. In Dekalb district, drilling has not yet been started at the rig on the H. E. Engle heirs farm which Frank Golden and others plan to test. Clark Bowser has a rig standing for a second test on the M. D. Ralston farm.

In Marshall County the Manufacturers Light & Heat Co. is down to 2,350 feet in its No. 1,975 on the L. Burley farm in Liberty district. In Harrison County the Delaware Gas Co. is shut down at 2,400 feet in its second well on the Reynolds heirs farm in Eagle district. In Lewis County, the Hope Natural Gas Co. is drilling at 1,650 feet in a test on the J. A. Crother farm in Collins Settlement district. In Reedy district, Wirt County, the Heck Oil Co. is down to 300 feet in a second well on the J. E. Watkins farm.

In Wetzel County the test of the Lomie Oil & Gas Trust on the Lomie Hunt farm in Church district has reached 2,365 feet, and in the same district the Burton Gas Co. is down past 700 feet in a test on the J. W. Trot farm. On the Moses Bartrug farm, same district, the Manufacturers Light & Heat Co. is drilling at 1,716 feet in its No. 5 on that farm.

In Pleasants County George W. Tice has spudded in and started drilling a test on the Isaac Cox farm in Union district and is down 300 feet. In Jefferson district H. M. Adams and others have two wells drilling, both tests, on the James Ruckman farm and the other on the Charles Ruckman farm.

In Clay district, Monongalia County, the Pedlar Run Oil Co. is down to 2,540 feet in a test on the Lewis R. Hess farm. In Marion County the Owens Illinois Glass Co. has a rig standing for a test on the O. A. Keefover farm in Paw Paw district.

In Wayne County the Chartiers Oil Co. has started a second well on the George W. Ronk farm in Butler district. This well is now drilling at 500 feet. In Grant district of Cabell County the Harshbarger Oil & Gas Co. has a rig standarding for a test on the James Conner farm. H. O. Davis has reached the sand in his No. 16 on the George S. Lemon farm in Clay district of Wirt County.

SOUTHWEST PENNSYLVANIA

There were no completions in southwest Pennsylvania during the last week and just one well was due to be heard from within the next few days. None of the large companies is operating any drilling rigs except in a few cases to drill deeper, some in which the production has declined to a low point and under which two sands lie which may be productive.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 43)

Sabine Royalties Co., Inc.'s No. 1 Hill, 400 ft. S, 200 ft. E, NW cor. NE NE, Sec. 5-7-11.... Completed July 17; 5 bbls. at 2,546 ft.

The Texas Co.'s No. 1 G. L. Nabours, 1,120 ft. S, 530 ft. W, NE cor. SE, Sec. 2-7-11.... Began July 20; set 10-in. 90 ft; drlg. 774 ft.

Houston-Sabine Prod. Co.'s No. 1 Sabine Lbr. Co. (was Triangle Pet. Co.'s No. 2 Sabine Lbr. Co.), 330 ft. N and E, SW cor., Sec. 36-8-13.... S.D. 2,440 ft.

ARKANSAS

UNION COUNTY—ELDORADO

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 346 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15.... Cored wtr. sand; streaks lignite 4,688 ft.

Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15.... S.D. 2,603 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. 8¼ NW, Sec. 11-18-13.... T.A. 3,536 ft.

Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13.... Location.

EAST TEXAS

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 14 Werner, 341 ft. S, 300 ft. W, NE cor. Werner 74-ac. tr., Ben C. Jordon Sur. .... Bailing to test 4,718 ft.

Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur. .... Drlg. 2,925 ft; (corrected).

Dillon & Braham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac., in Hampton West Sur. .... S.D. 1,555 ft.

United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in E. C. Jordan Sur. .... Location.

Southwestern O. & G. Co.'s No. 1 E. B. Vinson, 3,005 ft. S, 1,001 ft. W, NE cor. C. T. Anderson Sur. .... S.D. 2,650 ft.

MISSISSIPPI

HINDS COUNTY

Hopkins Gas Co.'s No. 1 Ridgeway, 680 ft. N, 70 ft. W, SE cor. NW, C. Sec. 2-5-1e.... Set 6⅝-in. 2,457 ft.

Love Pet. Co.'s No. 3 Maley, 2,780 ft. E, 980 ft. S, NW cor., Sec. 15-5n-1e.... Drlg. 2,400 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

CLAY COUNTY
(Cable tools)

Company, farm and location— Remarks:

Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5.... Drlg. 4,383 ft.

HINDS COUNTY

Atkisson & Dyer's No. 1 Downing et al, SE NE, Sec. 27-6-1.... Drlg. plug 2,540 ft.

Community Gas Co.'s No. 1 Millsaps College, Sec. 34-6n-1e.... Set 15½-in. 47 ft; drlg. 195 ft.

Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e.... S.D. 74 ft.

Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 330 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-5-1e.... S.D. 20 ft; W.O.

HUMPHREYS COUNTY

Danciger O. & G. Co.'s No. 1 Belgrade Lbr. Co., C NW, Sec. 29-14n-4w.... Began July 19; drilled 27 ft; S.D.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9.... Drlg. 2,091 ft.

JEFFERSON COUNTY

Stokes & Cleve Love's No. 1 Phillips, Sec. 14-10n-2w.... Drlg. 915 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19.... S.D. 3,015 ft.

McAlpine et al's No. 1 Cowart, second hole, Sec. 2-13-19.... Drlg. 3,240 ft.

NEWTON COUNTY

Bob Talton et al's No. 1 Majure, 400 ft. N, 600 ft. W, SE cor., Sec. 25-16n-11e.... Rigging up.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e.... Drlg. 1,214 ft.

RANKIN COUNTY

Atkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-2e.... S.D. 31 ft.

Gulf Ref. Co.'s No. 1-A Hanna, Sec. 23-6n-1e.... Drlg. 1,436 ft.

Harding & Flint's No. 1 Webb, center Lot 32, Blk. B, East Jackson Place, Jackson City Subd., Sec. 12-5-1. Derrick blown down.

R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 35-6-1e.... T.D. 900 ft.

Cleve Love's No. 1 Muse, SE cor. SW SW, Sec. 32-7-4e.... Dry and abd. 4,000 ft.

Square Deal O. & G. Co.'s No. 1 Spann, NW cor. SE NE, Sec. 13-5n-1e.... Rigging up.

Union Drlg. Co.'s No. 1 Pate Royalty Co., NW cor. Lot 11, Blk. F, E. Jackson Pl., First Addn., Sec. 13-5n-1e. Drlg. plug 2,379 ft.

Willis & Culley's No. 1 Applewhite & Holden, 10 ft. N, 60 ft. E, SW cor., Sec. 12-5n-1e.... Derrick.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-5-9.... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-3.... S.D. 2,607 ft.

WEBSTER COUNTY

P. J. McAlpine's No. 1 Henly (was Cumberland Oil Co.'s No. 1 Henly), SE NW, Sec. 15-21n-11e.... Reaming to bottom 1,875 ft.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14.... Coring 3,525 ft.

YALOBUSHA COUNTY

Collett-Carter Oil Co.'s No. 2 Blackmur, 990 ft. W, 285 ft. N, C, Sec. 11-11-4.... T.A. 3,478 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 43)

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5.... Derrick.

Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6. Location.

SABINE PARISH

Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11.... S.D. 105 ft.

R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 200 ft. W, NE cor. NW NW, Sec. 10-8-13.... S.D. 3,630 ft.

Langbridge Oil Co.'s No. 1 Stephens, 330 ft. N and E, SW cor. SE NE, Sec. 17-9-11.... S.D. 2,215 ft; repairing rig.

J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-12.. Set 8-in. 1,590 ft.

H. W. Perritt's No. 4 Bowman-Hicks, SE cor. SE NE, Sec. 2-7-12.... Tested small show oil 2,502 ft; S.D.; W.O.

A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor., NE SE, Sec. 8-8-13.... S.D. for wtr. 1,200 ft.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12.... S.D. 3,545 ft.

UNION PARISH

Dan Brooks' No. 1 Odus Douglas, 330 ft. S and E, NW cor. NE SW, Sec. 9-22-2.... Derrick.

T. P. Fields, tr.'s No. 1 Summitt Land Co., C W½ NW, Sec. 1-21-1w.... Drlg. 2,094 ft.

United Gas Public Service Co.'s No. 2 Stevens, 4,593 ft. N, 586 ft. W, SE cor., Sec. 36-21-2.... Set 10-in. 2,045 ft; W.O.C.

WINN PARISH

Gulf Ref. Co.'s No. 1-A Bodcaw Lbr. Co., 911 ft. N, 970 ft. E, SW cor., Sec. 4-10-5w.... Drlg. hard chalk 3,477 ft.

ARKANSAS

CHICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 31-28-3.... T.A. 2,925 ft.

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22.... Cored sandy shale 800-04 ft; no show.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C NW SE, Sec. 4-20-3.... Repairing derrick 1,252 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w.... Rigging up.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9.... S.D. 3,740 ft.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 320 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-18.... S.D; W.O. 2,869 ft.

J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NW NE, Sec. 11-9-15.... S.D. funds 2,520 ft.

DREW COUNTY

Co-Operative Development Co.'s No. 1 R. L. Hardy, SW cor. NE NE, Sec. 6-13-7.... Rigging up.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16.... S.D. 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 220 ft. W, NE cor. NE SW, Sec. 5-8-7.... Drlg. plug 1,294 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-29.... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26.... S.D; W.O. 3,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27.... Location.

OUACHITA COUNTY

Copenhaven et al's No. 1 Elliott, Sec. 11-15-17.... Bailed dry 2,210 ft.; S.D.; W.O.

Boling & McLeon's No. 1 L. D. Nealy, 150 ft. S, 150 ft. W, NE cor. SE SW, Sec. 25-16-15.... Cored sand 2,032-36 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14.... T.A. 2,909 ft.

E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24.... Coring red shale 462 ft.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26.... S.D; T.D. 1,436 ft.

Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29.... S.D; waiting on csg. 1,860 ft.

SEBASTIAN COUNTY

Ozark Nat. Gas Co.'s No. 1 E. O. Girard, C NW NW, Sec. 34-8-30.... Location.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-18-13.... 600 ft. fluid 30% S.W. in hole; T.A. 3,570 ft.

WASHINGTON COUNTY
(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30.... S.D. for funds 1,795 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-21.... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Hindeman & Ball's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur.... S.D. 2,520 ft.

Tarkington & Jones' No. 1 W. Whybark, 200 ft. S, 200 ft. W of SW cor. J. H. Dyer Sur.... S.D. 30 ft.

Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur.... S.D. 3,000 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 137-ac. tr. in J. H. Murphy Sur.... S.D. 3,600 ft.

CASS COUNTY

E. K. Atkinson's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur.... S.D. 3,021 ft.

R. G. Baker's No. 1 W. R. Caver, on W. R. Caver 75-ac. tr., John Lick Sur.... Coring 3,550 ft.

Davis & Pigg's No. 1 Roy Brian, SW cor. Roy Bryan 38-ac. tr., Albert H. Latimer Sur.... S.D. 2,055 ft.

Everts Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S, and W, NE cor. 60-ac. Whittington tr., L. Strong Sur.... S.D. 3,922 ft; waiting on D.S.

Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur.... S.D; W.O. 4,001 ft.

C. E. Murdock's No. 1 First National Bank, Evans Watson Sur.... Drlg. hard lime 4,235 ft.

John Nelson's No. 1 T. A. Irvin, 200 ft. S and E of NW cor. McNary Harris Sur.... Drlg. shale 3,185 ft.

Olds & Smith's No. 1 Athey, 3,056 ft. W.-E line, 656 ft. S.-N line, J. C. Byers Sur.... S.D. 3,100 ft.

John C. Rogers' No. 1 L. E. Lanier, 573 ft. N, 870 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur.... Reaming to bottom 2,280 ft.

John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur.... S.D. 955 ft.

HARRISON COUNTY

Gholson et al's No. 1 Bivins Farm Co., on J. K. Bivins, Jr.'s 320-ac. tr., Thos. Toby Sur.... S.D. 2,759 ft.

Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 250 ft. from E line of 105-ac. tr., Findley Sur.... Set 10-in. 240 ft; S.D; W.O.; (corrected).

O. O. Olford et al's No. 1 R. W. Bolding, 330 ft. E of SE cor. J. B. Cullen's 161-ac. tr., 300 ft. N of N line of Mrs. C. L. Brown's 20-ac. tr., W. W. O. Stanfield Sur.... S.D. 2,702 ft.

O. H. Parkening's No. 1 T. J. Taylor, C, Blk. 32, W. H. Payne Sur.... S.D. 2,530 ft.

Ryan Consolidated Pet. Corp.'s No. 1 Dr. H. H. Kay, 1,500 varas N of SE line, 500 varas E of SW line, of E. Carroll Sur.... Drlg. 5,002 ft.

Ryan Consolidated Pet. Corp.'s No. 1 J. M. Furh, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur.... Derrick.

Thomas & Kinsey's No. 1 J. R. Watson, Thos. Iden Sur.. Rigging up.

MARION COUNTY

Gist, Claunch & Dodson's No. 1 Miller, 1,470 ft. E line, 735 ft. N line, SW cor. H. Fulgran H.R. Sur.... S.D. 300 ft.

Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S. most northerly N line, 2,555 ft. E most easterly W line, Alexander Albright Sur.... S.D. 2,380 ft.

Hindeman & Rhondo's No. 1 McGaughey, 1,547 ft. W most northerly SW cor., 1,638 ft. N most northerly S line, W. J. Willis Sur.... S.D. 3,910 ft.

Shelton et al's No. 1 J. M. McNeal, 800 ft. S, 400 ft. W, NE cor. McNeal's 721-ac. tr., R. Fowler Sur.... Dry and abd. 3,750 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur.... Derrick.

Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur... Spudded and S.D. (corrected).

G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... S.D; changing to heavy rig 550 ft.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... Set 12½-in. 400 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. ... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,230 ft.

SHELBY COUNTY

I. M. Bradley's No. 1 Ashberry (no check), G. W. Mitchell Sur. ..... S.D. 3,280 ft.
E. L. Chapman's No. 1 Pickering Lbr. Co., C. E. Henry (headright) ..... Trying to kill gasser; T.D. 3,864 ft.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. .... Arranging to set 6⅝-in. 3,127 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. .... Set 10-in. 392 ft.
H. P. Glidden's No. 1 Pickering Lbr. Co., Jonas Harrison Sur., 300 ft. E of NW cor., 150 ft. S of N line at right angles Pickering 59-ac. tr. ..... Drlg. broken chalk 3,000 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft; drlg. wtr. well.
Wm. A. Stephens' No. 1 Foster & Billingsly, 150 ft. W of CEL Foster & Billingsly's 169-ac. tr., J. Bowlin Sur. ..... S.D. 1,540 ft.
T. A. Martin's No. 1 J. B. Bush, S 8° E, 2,000 ft. from NW cor. J. B. Bush's 77-ac. tr., thence E at right angles to said line 200 ft., Alfred Lindsey Sur. ..... Derrick.
Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... Drlg. black shale 2,441 ft.
Geo. N. Pace's No. 1 E. H. Powers, western J. Timms Sur., 150 ft. E of W line, 300 ft. N of S line Powers 124-ac. tr. ..... Derrick.
Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 2,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... Derrick.
Schultz et al's No. 1 Hughes, 150 ft. SW cor. Hughes' 110-ac. tr., J. Clay Sur. ..... S.D. 3,425 ft.
Sloan Prospecting Co.'s No. 1 Sanford, approximately 300 ft. N and 200 ft. E, SW cor. B. Sanford 49-ac. tr. in M. M. Van Sur. ..... Reaming to bottom 3,497 ft.
A. D. Smith's No. 1 Y. D. Carroll-J. A. Parker Sur., 1,500 ft. N, 300 ft. W, SE cor. J. A. Carroll Sur. .... Began July 22; drlg. 200 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft; waiting on D.S.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... Began July 15; drlg. 1,300 ft.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 46)

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 722 ft.; trying to set csg. on bottom.

DEWITT COUNTY

Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur. .. Rigging up.

DUVAL COUNTY

Coffee et al's No. 1 Jose Garza, center Sur. 49 ..... T. D. 1,430 ft.; drlg.
O'Byrne et al's No. 1 Well, B.S.&F. Sur. No. 568 ..... T. D. 2,632 ft.; testing sand.
S. J. Carpenter et al's No. 1 Juan Benavides, Blk. 33, Mesquite grant ..... T. D. 1,712 ft.; standing.
Frank Gravis' No. 1 Shallert, Sur. No. 255 ..... Derrick.
Southern Crude Oil Pur. Co. and Camp's No. 1 Hubbard, 1,650 ft. from S line, 330 ft. from E line of Sur. No. 75 ..... T. D. 565 ft.; losing returns.

FAYETTE COUNTY

Elam & Reynolds' No. 1 Florence, M. Muldoon Sur. No. 13 ..... T. D. 2,610 ft.; flowing fresh water.

GOLIAD COUNTY

V. F. Neuhaus' No. 1 J. E. Pettus, 4,750 ft. N, 28 degrees 20 minutes W of extreme SE cor. of 3,418-ac. tract in Maria de Jesus Ybarbo Sur. ..... T. D. 4,298 ft.; swabbing.

GUADALUPE COUNTY

Harry Bruner's No. 2 Jim Sherrill, 330 ft. from NW and SW lines of tract in George Allen League ..... T. D. 180 ft.; changing to rotary rig.
McGarrity et al's No. 1 A. Wesch, Jr., 150 ft. to N and E lines of farm, H. M. Thompson Sur. ..... T. D. 797 ft.; standing.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. ..... T. D. 1,745 ft.; shut down.
Linne et al's No. 1 J. E. Linne, center 263-ac. tract in V. Cortario Sur. ..... Rigging up.
W. J. Walton's No. 1 Zoborouski, 700 ft. W line of tract, 500 ft. S of Guadalupe River, in Joseph D. Clements Sur. ..... T. D. 2,210 ft.; flowing 8 bbls. daily.

HAYS COUNTY

J. C. Jones et al's No. 1 Byder, John Ingram Sur. ..... T. D. 930 ft.; standing.

JIM HOGG COUNTY

Peterman & Minahan's No. 1 Palacios, Sur. No. 231 .... T. D. 1,360 ft.; shut down.
D. C. DeWitt's No. 1 Teofilo Gomez, 1,170 ft. from N line, 150 ft. from W line of Sur. 12 ..... T. D. 200 ft.; shut down.

JIM WELLS COUNTY

Carsil Oil & Gas Co.'s No. 3 McGill, 450 ft. S, 300 ft. E of No. 1 McGill in Wm. D. Baldwin Sur. ..... T. D. 2,804 ft.; swabbing.

KARNES COUNTY

V. F. Neuhaus' No. 1 Russell, 150 ft. from E line of tract, 150 ft. N of highway, Carlos Martinez Sur.... Location.

KENDALL COUNTY

Borgett et al's No. 1 W. Haag, 2,304 ft. from N line, 1,506 ft. from W line of W. Avery Sur. ..... T. D. 1,190 ft.; reinstated; drlg.
Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale ..... T. D. 2,670 ft.; reaming.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur., in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 1,482 ft.; shut down.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county ..... Spudded in and shut down.
Hicks et al's No. 1 Speck & Wiedner, Thomas Sur. No. 27, 2 miles S of Twin Sisters ..... Rigging up.
Sartain's No. 1 Lawhon, 30 ft. SE of Perkins' No. 1 Lawhon; taken over at 281 ft. ..... T. D. 650 ft.; drlg.

KERR COUNTY

Herbert Oil Co.'s No. 1 J. D. Witt, 1,320 ft. N line, 1,320 ft. W line of Sec. 1,923, W. H. Hamilton Sur... T. D. 200 ft.; standing.
Evans & Gant's No. 1 Seiker-Mears, C.C.S.D.&N.G.R.G. Sur. No. 1,605 ..... T. D. 4,028 ft.; shut down.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 ..... T. D. 1,312 ft.; drlg.
Evans & Gant's No. 1 Love in J. Martinez Sur. No. 1,594, 1,320 ft. from W line of survey and 660 ft. S of S line of Sur. No. 1,597 ..... T. D. 4,060 ft.; shut down.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 ..... T. D. 450 ft.; fishing.
B. M. Hatfield's No. 1 Westland, Blk. 23, Westland Subd. to Kerrville ..... T. D. 460 ft.; standing.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 850 ft.; standing.

KLEBERG COUNTY

Barbee & Hunter's No. 1 Finnegan, 150 ft. from N and W lines of El Pasodeso Sur., 2 miles S of Ricardo.. T. D. 3,031 ft.; abnd. dry.

LIVE OAK COUNTY

Catlett & O'Neill's No. 1 Hatcher, 253 ft. from S line, 3,200 ft. from W line of 703-ac. tract in James McGloin Sur. ..... T. D. 2,300 ft.; drlg.
Henderson Coquat's No. 1 Hewitt ..... T. D. 400 ft.; drlg.

LEE COUNTY

Burt et al's No. 1 R. C. Saunders, J. Maxmilian Sur. .... T. D. 3,998 ft.; reaming 300 ft. off bottom.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T. D. 3,315 ft.; fishing for baller.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. .. T. D. 2,300 ft.; shut down.

McLENNAN COUNTY

C. E. Groone et al's No. 1 League ..... T. D. 1,230 ft.; shut down.

McMULLEN COUNTY

Belt Pet., Inc.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. ..... T. D. 28 ft.; standing.
Whall, Scherer et al's No. 1 Shiner, Henry Brewer Sur... T. D. 2,008 ft.; shut down.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113 ..... Rigging up.
J. H. Hickey's No. 1 Jungman, at N end Chicon Lake... T. D. 565 ft.; shut down.
Star Petroleum Co.'s No. 1 Medina Valley Irrigation Co., 150 ft. from S and E lines of Isom Palmer Sur. No. 20 ..... T. D. 620 ft.; drlg.
Sunflower Oil Co.'s No. 1 Mofield, J. Brothag Sur. No. 532 ..... T. D. 2,100 ft.; drlg.
F. E. Tegler's No. 1 J. P. Nixon, 600 ft. from W line, 584 ft. from N line of tract, near Ina Field ..... T. D. 957 ft.; abnd. in salt water.
Yancey Development Co.'s No. 1 Fassler, Sur. No. 801 .. T. D. 1,945 ft.; making drill stem test.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 Dilbeck, 450 ft. N and E lines of farm, Fernando Rodriguez Sur. ..... T. D. 2,500 ft.; shut down.
Red Bank Oil Co.'s No. 1 Foster, A. G. Berry Sur. ..... T. D. 3,512 ft.; making test.
Wilson-Broach Co.'s No. 1 E. L. White, 250 ft. from S and E lines of S. Frost Sur. ..... T. D. 1,795 ft.; drlg.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Charles E. Stratton, 1,650 ft. E line, 330 ft. S line of P. Sancho Sur. .... T. D. 3,518 ft.; shut down at contract depth.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 ..... T. D. 2,318 ft.; no report.
Gant-Kilgore and Evans' No. 1 A. D. Auld, C.C.S.D.& N.G.R.G. Sur. No. 23 ..... T. D. 4,007 ft.; hole clean; shut down.

SAN PATRICIO COUNTY

Jacob Buzini, Pickett's No. 2 Baldwin, three-fourths mile from S and W lines of tract ..... Rigging up.
United Production Co.'s No. 1 Mayfield ..... T. D. 2,975 ft.; drlg.
Welder Oil Corp.'s No. 1 Welder, 1,500 ft. S, 800 ft. W. of Aransas Oil Corp.'s No. 1 Welder ..... Spudded in.

STARR COUNTY

Los Olmos Oil Co.'s No. 5 Kelsey-Bass, 300 ft. N of No. 4 ..... T. D. 431 ft.; comp. 25 bbls.

WEBB COUNTY

Cole Pet. Co.'s No. 4 Benavides, Sur. No. 1,613 ..... T. D. 2,880 ft.; drlg.
Eugene Garner, Jr.'s No. 1 Billings, 411 ft. E line, 956 ft. N line of NW NE, Sur. 71 ..... Building derrick.
Southern Gas Utilities and O. W. Killam's No. 1 de la Garza ..... T. D. 2,211 ft.; in sand showing gas; set csg.

WILLIAMSON COUNTY

Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown ..... T. D. 1,042 ft.; lowering 10-in. csg.
H. Fritz et al's No. 1 fee, 450 ft. from S line, 1,050 ft. from W line of farm in H.T.&B. Sur. ..... T. D. 420 ft.; drlg.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur. ..... T. D. 1,025 ft.; shut down.
Sun Oil Co.-Penn Oil Co.'s No. 1 Tudyke ..... Rigging up.

ZAPATA COUNTY

A. R. McLennan's No. 3 Cuellar ..... T. D. 1,582 ft.; comp. 50 bbls.
T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigged up and standing.
Bill Henry et al's No. 1 Gopher Trust estate, Borrego grant ..... T. D. 1,365 ft.; standing.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr. et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 32 and 34, Blk. 1, Sur. 2 ..... T. D. 2,035 ft.; drlg.
National Oil Co.'s No. 1 Zapata Trust Estate, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 ..... T. D. 690 ft.; drlg.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant ..... T. D. 1,320 ft.; drlg.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 48)

BLUE RIDGE—FORT BEND COUNTY

Telschaw et al's No. 5 Blakely, 90 ft. E and 150 ft. S of NW cor. of E half, Lot 4, Blk. F, E. Drek Sur. ..... Total depth 3,105 ft.; plugged to 2,400 ft.; sidetracked to 2,800 ft.; set 56 ft. 4½-in. screen and 2½-in. tubing on seal; comp. flowing 126 bbls. pipe line oil 38.9 gravity.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Oil Co.'s No. 1 Davis (D.D.), 50 ft. out of SE cor. of David Kokernot Sur. ..... Drlg. water sand 3,072 ft.
Cranfill-Reynolds Oil Co.'s No. 7 Davis, David Kokernot Sur., 100 ft. S of No. 4 ..... Shale 6,302 ft.; cmtd. 9⅝-in. csg. on bottom; temporarily abnd.

ORANGE—ORANGE COUNTY

Gulf Prod. Co.'s No. 1 K. Kishi, J. Dyson Sur., 378 ft. from E line and 234 ft. from S line of tract ..... Drlg. sticky shale 5,630 ft.
Jefferson Production Co.'s No. 1 Bland ..... Sticky shale 2,925 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 14 Boyt, H.&T.C. Sur. No. 22, 500 ft. N of No. 10 ..... Drlg. hard sand 5,833 ft.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Humble Oil & Ref. Co.'s No. 3 Sterling, James McFaddin Sur., 150 ft. from N line and 1,650 ft. from E line of 512-acre tract ..... Location.

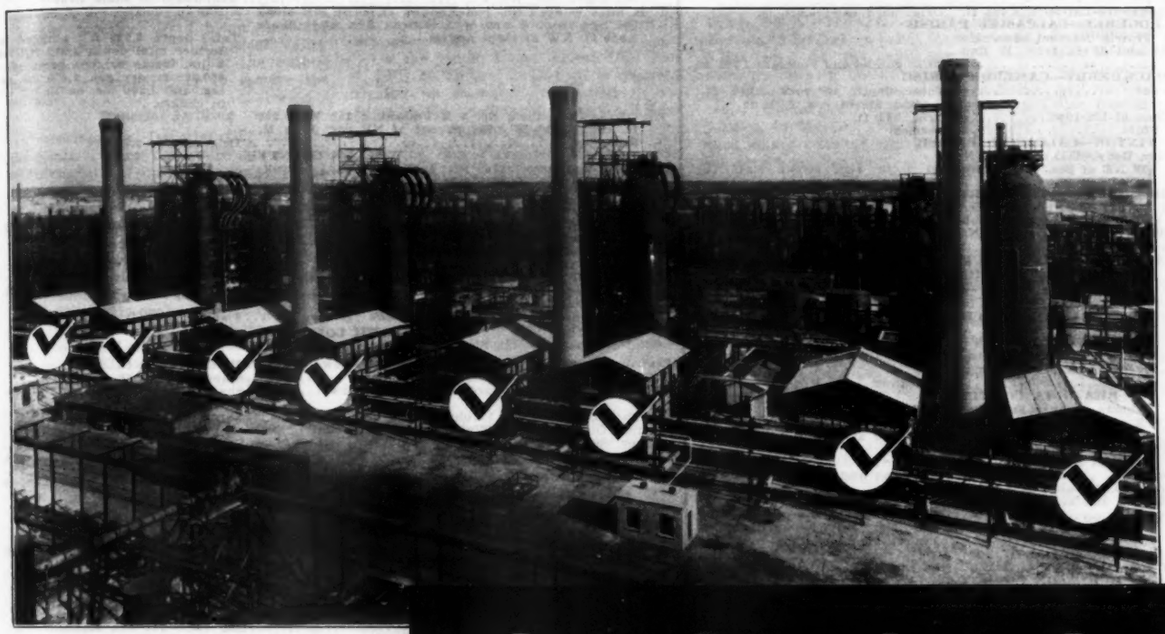
REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 6 Pratt-Hewitt-Rooke (D.D.), Thomas Mullen Sur., 1,150 ft. N and 200 ft. W of SE cor. of tract ..... Sand 3,699-3,705 ft.; washing.
Mission Drilling Co.'s No. 1 O'Brien (W.O.), SW cor. 12½-acre tract, Refugio Town Tract ..... Total depth 6,449 ft.; drlg. sidetracked hole in shale 5,314 ft.
Mission Drilling Co.'s No. 2 J. J. O'Brien, Refugio town tract, 150 ft. from E line and 150 ft. from S line 1½-acre tract ..... Sand 6,450-58 ft.; comp. flowing 1,125 bbls. pipe line oil, ¼-in. choke.
Moody-Seagraves Producing Co.'s No. 4 O'Connor, Refugio town tract, 150 ft. from N line and 1,282 ft. from W line of 60-acre tract ..... Sand showing gas 6,477 ft.; cmtd. 5 3/16-in. csg. 6,426 ft.
T. P. Morgan's No. 1 Lambert, Refugio town tract, 450 ft. from N line and 650 ft. from W line of 105-acre tract ..... Coring sand 6,262 ft.
Pearson Properties' No. 3 Ryals, 536 ft. from W line and 150 ft. from S line 52-acre tract, Refugio Town Tract ..... Killing well to deepen 5,488 ft.

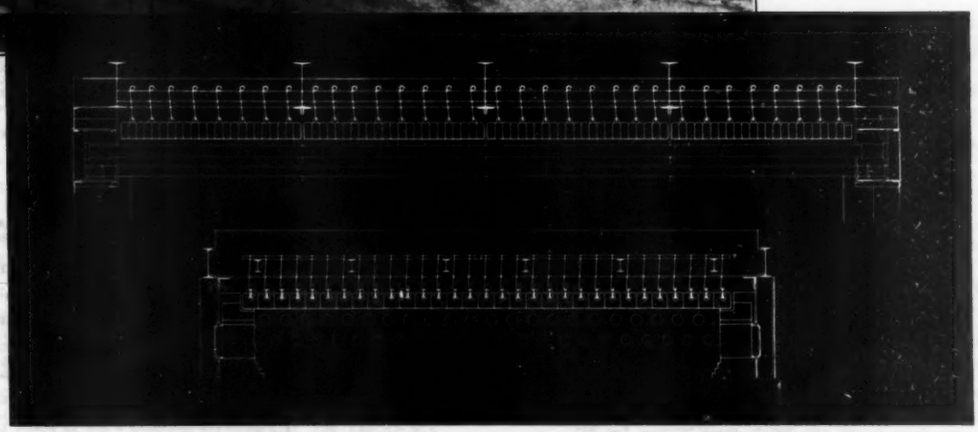
Reasons why

the heaters of these Foster Wheeler crude distillation units have

BIGELOW UNIT-SUSPENDED ARCHES



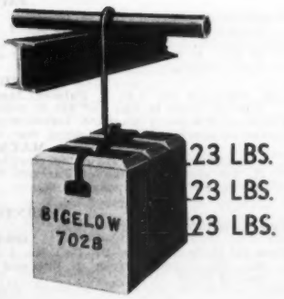
Four duplicate Foster Wheeler crude distillation units in a well known refinery. These two-stage units will each process 10,000 barrels of crude per day.



Outage time reduced . . The time usually required to cool down furnaces can be greatly reduced by removing several "units" from the Bigelow Arch to give the hot gases this rapid and natural avenue of escape. Because each Bigelow Arch "unit" is independent of every other "unit," lifting and replacing these "units" *(from outside the furnace)* is a simple matter that requires only a moment's time.

Longer life assured . . There is no cumulative loading of the refractory in the Bigelow Arch. Each refractory "unit" is free to expand and contract without imposing stress on itself or adjacent "units" thereby eliminating the principal cause of spalling.

Less maintenance required . . Repairs are seldom necessary but they are quickly and cheaply made from *outside* the furnace without waiting for it to cool down. Any Bigelow Arch "unit" can be replaced without disturbing adjacent tile—this minimizes the amount of refractory used for replacement.



Each "unit" of the Bigelow Arch consists of 2 or 3 slotted tile on a hanger that is supported by a forged steel hook from steel pipe carried by steel beams that support the entire weight of the arch. Every "unit" is entirely independent of every other unit.

BIGELOW-LIPTAK CORPORATION, 5053 Woodward Ave., Detroit, Michigan

Sales Offices in Principal Cities: *Canadian Licensees: Riley Engineering and Supply Co., Ltd., Toronto 10, Canada » » » Main European Office: Liptak Furnace Arches, Ltd., 38 Victoria Street, London, S. W. 1, England.*

BIGELOW-LIPTAK

A SUSPENDED WALL AND ARCH FOR EVERY FURNACE

United Prod. Corp.'s No. 6 O'Brien, 150 ft. from S line of tract, 350 ft. W of No. 3 ..... Oil sand 6,438-51 ft.; twisted off joint drill stem; waiting orders.

United Prod. Corp.'s No. 1-B W. J. Fox, Wm. Hews and L. Brown Sur., 2,541.7 ft. NE along SE line from SE cor. lease and 300 ft. NW at right angles ..... Drlg. sandy shale 5,706 ft.

United Prod. Corp.'s No. 4 M. F. Lambert, Wm. Hews and L. Brown Sur., 2,514.7 ft. NE along NW line from SE cor. lease and 330 ft. NW at right angles... Drlg. shale 2,185 ft.

United Prod. Corp.'s No. 5 Holmes Heard, 660 ft. from N line and 2,376 ft. from W line, Blk. 8, town tract.. Total depth 3,765 ft.; plugged to 3,655 ft.; comp. dry gas well 700 lbs. rock pressure.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 5-A Farquahar, 105 ft. S and 110 ft. E of NW cor. SW NE Sec. 8-10s-9w ..... Drlg. shale 6,017 ft.

JENNINGS—ACADIA PARISH

Port City Oil Co.'s No. 13 Jennings-Heywood, 2,650 ft. NW of SE cor. N one-fourth of fractional Sec. 41-9s-2w, 675 ft. from the W line ..... Set 42 ft. screen 1,722 ft.; comp. flowing 200 bbls. fluid, 5% water.

E and 1,070 ft. N of SW cor. Sec. 47-9s-2w .....

Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. Drlg. hard sand 5,015 ft.

EDGERLY—CALCASIEU PARISH

Rex Petroleum Co.'s No. 3 Prairie Narroni, Sec. 21-9s-11w, 125 ft. from S line and 50 ft. from W line of tract ..... Drlg. gumbo and boulders 3,701 ft.

HACKBERRY—CAMERON PARISH

R. E. Seiss' No. 2 J. M. Vincent ..... Total depth in rock 2,042 ft.; cmtd. 6⅝-in. csg. 2,004 ft.

J. G. Sutton's No. 2 Erwin, Sec. 13-12s-10w..... Drlg. 300 ft.

The Texas Company's No. 8 State ..... Derrick.

VINTON—CALCASIEU PARISH

Vinton Pet. Co.'s No. 7 Matilda Gray (D.D.), 157 ft. N and 674 ft. W of SE cor. SW NE of Sec. 33-10s-12w.. Set 1 jt. 3-in. screen 3,245 ft.; bailing.

PORT BARRE—ST. LANDRY PARISH

The Texas Company's No. 10 Botney Bay, Sec. 4-6s-5e, 100 ft. S line and 100 ft. E line, Daniel 55-acre tract.. Drlg. lime cap 4,096 ft.

SWEET LAKE—CAMERON PARISH

Magnolia Pet. Co.'s No. 2 Sweet Lake, Sec. 5-13s-7w ..... Shale 6,734 ft.; shut down.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 767 fee, 338 ft. E and 180 ft. N of C Sec. 29-9s-10w ..... Oil sand 3,737-45 ft.; cmtd. 9⅝-in. csg. 3,737 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Parmerson & Cafferkey et al's No. 1 W. N. Schlecte, John Fitzgibbons Sur., 1,850 ft. from SE line and 3,100 ft. from NE line of survey ..... Shut down 1,502 ft.

BRAZORIA COUNTY

Cullen & West's No. 1 Nash, Thomas Alsbury Sur. No. 4, 2,600 ft. E and 1,240 ft. S of SW cor. Mrs. R. L. Young 1,482-acre tract ..... Drlg. sand and shale 3,320 ft.

The Texas Company's No. 1 Belcher, Manvel, 167 ft. SE of NW line and 223 ft. of NE of SW line, Lot 18, Blk. A, Suburban Gardens Subd. ..... Drlg. sand and shale 4,294 ft.

United North & South Oil Co.'s No. 1 Daisy B. Lewis, S. F. Austin 5 league, 568 ft. S and 335 ft. E from NW cor. 100-acre tract ..... Cavity or porous rock 4,396-4,404 ft.; lost returns; drill stem stuck; abandoned.

United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Peake Sur. ..... Rig.

BURLESON COUNTY

Reynolds Oil Co.'s No. 1 Harris, 500 ft. from W line and 400 ft. from N line of J. M. McKean Sur. ..... Shut down 400 ft.

F. Marek & Son's No. 1 Marek, N. A. McFaddin Sur., 150 ft. from SE line and 500 ft. from SW line of 84.43-acre tract ..... Location.

Martz et al's No. 1 W. H. Boyett, W. McWilliams Sur., 3,168 ft. N of N cor. of City National Bank 205-acre tract and 800 ft. SE of NW line of Boyett tract.. Hard shale 805 ft.; cmtd. 10-in. csg.

J. E. Stubblefield's No. 1 J. B. Mitchell, 81 ft. SW and 4,240 ft. SE of S cor. of Joseph Henson Sur., in A. T. Woolridge Sur. ..... Shut down 518 ft.

FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 1 A. P. George, J. Rabb Sur., 300 ft. S and 305 ft. E of NW cor. A. P. George 519-acre tract ..... Cmtd. 9⅝-in. csg. 3,493 ft.

GRIMES COUNTY

Rianje Oil Co.'s No. 2 Cuthrell, Pat B O'Connor Sur., C of 110-acre tract ..... Clay 96 ft.; cmtd. 10-in. csg.

HARDIN COUNTY

Plummer & McDaniel's No. 1 T. S. Reed, 2,500 ft. from W line and 500 ft. from N line of T.&N.O. Sur. No. 395 ..... Shut down in gumbo and lime 1,336 ft.

D. O. Speight's No. 1 Guedry, 4 miles S of Batson ..... Drlg. gumbo 4,056 ft.

HARRIS COUNTY

Hattie Baldwin's No. 1 Krahn, 250 ft. out of NW cor. L. Finn Sur. ..... Shut down 492 ft.

Giveens & Daybault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. ..... Drlg. sand and clay 904 ft.

Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur. ..... Location.

J. P. Hunnicutt's No. 1 Haney, T. Pitching Sur., 150 ft. out of NE cor. of Geo. E. Haney, 730-acre tract .... Location.

JACKSON COUNTY

Chicago-Gulf Oil Co.'s No. 9 Drushell, Edna F. Rodrigues Sur., 1,080 ft. N 53° E No. 8..... Location.

Francitas Oil & Land Co.'s No. 1 Thrull, 3,240 ft. SW of N cor., P. Green Sur., 540 ft. SE of E bank Caranchua Creek ..... Derrick.

LIBERTY COUNTY

J. R. Ingram's No. 1 C. T. Palmer, James Fenner Sur., 1,600 ft. from W line and 850 ft. from S line of tract.. Drlg. shale 1,745 ft.

Hamm et al's No. 1 Harvard, Davis Hill ..... Gumbo 1,015 ft.; shut down.

Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4 ..... Drlg. shale 2,972 ft.

MATAGORDA COUNTY

H. C. Cockburn's No. 2 Hawkins, Shepherds Mott, 4,810 ft. SE along SW line of Farnum Fry Sur., thence 343 ft. NE at right angles ..... Total depth 5,034 ft.; drlg. sidetracked hole in shale 3,718 ft.

MONTGOMERY COUNTY

Price & Wilhite's No. 2 Juerges ..... Drlg. water sand 4,823 ft.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... Total depth 4,603 ft.; sidetracked at 1,200 ft. and drlg. shale 2,200 ft.

Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ..... Drlg. gumbo 1,415 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... Shut down 3,134 ft.

T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Derrick.

Sunshine Oil Co.'s No. 1 Olliver, A. Viesca Sur., 600 ft. NE along SE line from S or SW cor. of 50-acre tract and thence 200 ft. NW at right angles ..... Derrick.

Trans-Coastal Oil Co.'s No. 1 M. E. Roberts, J. F. Rumayor Sur., 350 ft. from W line and 150 ft. from N line of tract ..... Drlg. sand and shale 750 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 16, Bonnie View Ranch Subd. ..... Standing 4,263 ft.

Humble Oil & Ref. Co.'s No. 1 O'Connor, John Keating Sur., 6,012 ft. S from NE cor. along SE line of Lon T. Rios Sur., thence 7,375 ft. W at right angles in John Keating Sur. ..... Moving in rig.

SAN JACINTO COUNTY

E. P. Edwards et al's No. 1 Bennett, northwest of Cold Springs ..... Abandoned 40 ft.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,256 ft.; cmtd. 6-in. csg. 1,218 ft.

Allied Pet. Co.'s (Texas Southern Pet. Co.'s) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line ..... Total depth 4,953 ft.; reaming to bottom.

VICTORIA COUNTY

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line ... Drlg. shale 4,674 ft.

Simpson-Fell and Westheimer et al's No. 1 Levi, 2,200 ft. from SW line and 2,000 ft. from NW line of S.A.&M.G. Sur. No. 4 ..... Abandoned in shale 5,760 ft.

T. B. Slick estate's No. 1 McFaddin, 17,700 ft. NE along SE line from S cor. of J. Vairan Sur. and thence 5,050 ft. NW at right angles ..... Total depth 3,529 ft.; plugged to former total depth 3,512 ft.; set 3 jts. inside screen; comp. 50,000,000 ft. dry gas, 1,475 lbs. on csg. and 1,900 lbs. on liner; ¼-in chokes.

The Texas Company's No. 3 McFaddin, S 15° W., 6,200 ft. and N 75° W 1,850 ft. out of NE cor. John M. Rine Sur. ..... Drlg. gumbo 2,766 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-acre tract ..... Rig.

WASHINGTON COUNTY

Joe Baker et al's No. 1 Kramer, Brenham, 600 ft. S and 300 ft. W NE cor. 92 acres ..... Drlg. hard sand and shale 3,850 ft.

Fisher and associates' No. 1 H. F. Scholtz S. F. Austin Sur., 1,100 ft. NW along NE line from SE cor. of 107-acre tract and thence 12 ft. SW at right angles.. Abandoned 330 ft.

Penn-Tex Oil Co.'s No. 3 Kamas Brenham, S. M. Williams Sur. ..... Drlg. hard sand and lime 3,205 ft.

Yequa Oil Co.'s No. 1 Graves, S. Clampit Sur., 300 ft. from N line and 900 ft. from W line 111-acre tract.. Fishing 2,641 ft.

SOUTH LOUISIANA

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 22-9s-13w ..... Shut down 875 ft.

I. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Standing 6,568 ft.

Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Shale 3,265 ft.; preparing to resume drlg.

Dr. Thomas et al's No. 1 John Hewitt ..... Location.

Vacuum Oil Co.'s No. 1 Walt (D.D.), 225 ft. out of SE cor. Sec. 12-9s-7w ..... Sand showing oil 6,961-79 ft.; cmtd. 7-in. csg. and 1 jt. screen, blew out between 7-in. and 9⅝-in. csg. from sand at 5,001-08 ft.; blowing wild.

CAMERON PARISH

Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,120 ft. S and 1,900 ft. W from NE cor. Sec. 21-14s-9w (500 ft. S No. 1) ..... Total depth 4,312 ft.; drill stem stuck; sidetracking 1,942 ft.

The Texas Company's No. 7 State, Calcasieu Lake ..... Location.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 19 Lake Peigneur, Sec. 58-12s-5e, 300 ft. from No. 5 in line with Nos. 5 and 18 ..... Cap rock 842 ft.; standing.

Jefferson Lake Oil Co.'s No. 20 Lake Peigneur, 300 ft. N No. 3 and 300 ft. W No. 11, Sec. 58-12s-5e ..... Location.

IBERVILLE PARISH

Standard Oil Co.'s No. 1 Myrtle Grove-Wilbert, Bayou Choctaw, Sec. 52-9s-11e 250 ft. W No. 1 Gay ..... Spudded.

Standard Oil Co.'s No. 7 Wilbert, Bayou Blue ..... Derrick.

Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 2 ..... Losing returns 3,529 ft.

Standard Oil Co.'s No. 7 Schwing, Bayou Blue, Sec. 74-9s-10w, N 45°, W 1,500 ft. from No. 5 ..... Total depth 1,350 ft.; sand showing oil 1,307-12 ft.; shut down pending completion No. 6.

PLAQUEMINES PARISH

Humble Oil & Ref. Co.'s No. 2 State, Lake Grand Ecaille, Sec. 14-20s-26e ..... Cmtd. 12-in. csg. 635 ft.

ST. MARTIN PARISH

Federal Pet. Co.'s No. 1 Dangereaux, 11,200 ft. from W line and 50 ft. S of NE cor. of Sec. 140-9s-5e ..... Abandoned in sand and shale 5,012 ft.

TERREBONNE PARISH

The Texas Company's No. 1 La.L.&E., Bay St. Elaine ... Standing 5,683 ft.

The Texas Company's No. 3 La.L.&E., Bay Junop ..... Location.

The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.

The Texas Company's No. 6 State, Lake Barre ..... Salt 3,848-4,001 ft.; sidetracked to 3,400 ft.; shut down.

The Texas Company's No. 10 State, Lake Barre ..... Location.

The Texas Company's No. 11 State, Lake Barre ..... Rig.

The Texas Company's No. 12 State, Lake Barre ..... Location.

The Texas Company's No. 13 State, Lake Barre ..... Abandoned in salt 4,543-4,900 ft.

The Texas Company's No. 14 State, Lake Barre ..... Location.

The Texas Company's No. 6 State-Lake Pelto (D.D.), 1,650 ft. N and 670 ft. W from SE cor. tract, Sec. 8-23s-18e ..... Rig up to deepen 1,355 ft.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Alliance Land, Sec. 34-11s-1w, 2,400 ft. N and 300 ft. E of SW cor. section ..... Drlg. hard, sandy lime 6,080 ft.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w. Shale and lime 2,050 ft.; waiting on 8¼-in. csg.

PRODUCTION OF DRY GAS MIGHT VIOLATE THE LAW

LOS ANGELES, Calif., July 27.—Production on a large scale of dry gas, which could be shut in if it prevents the use and causes the waste of gas from oil wells which must be operated, may be in violation of the gas conservation law and subject to restriction by injunction even though none of the dry gas is blown into the air.

During the last court proceedings in the Kettleman Hills case this point came up for discussion when Bolsa Chica pointed out the possibility of its getting a dry gas well in its No. 1 Ferguson, and asked that in such event it be allowed to operate it. Special Counsel James S. Bennett expressed the opinion that such operation might be illegal if it caused the waste of gas unavoidably produced from oil wells.

Asked about this point, Mr. Bennett stated that the question of law involved has been frequently discussed but never directly raised in or decided by a court. He inclined to the opinion that the law would be violated if production of dry gas were conducted on a large scale and caused a big waste. At present, however, he considered the question academic as there was no substantial production of dry gas. If there should be any shortage of gas in Kettleman Hills to meet demand there would be no objection to development and use of dry gas.

CANADIAN FIELDS

(Continued from Page 51)

the federal government for tariff measures to protect the Canadian producers. One proposal along this line is that duty-free imports of crude petroleum be made conditional on the refiners absorbing the output of Canadian wells. Unrefined naphtha is being sold at the wells direct to consumers at 15 cents a gallon, a drop of 2 cents from the previous price. Independent producers have been selling direct for some months and recently the Royalite Oil Co. followed suit. "Washed" naphtha was recently placed on sale at Calgary at 25 cents a gallon in competition with the refined gasoline. In refining the practice is to blend imported crude oil with the volatile Turner Valley naphtha to give it body, but the washed naphtha is treated only to remove the sulphur.

Imperial Drilling

Operations by Imperial Oil, Ltd., in the South Turner Valley are now limited to three tests. Southern Lowery's No. 3, LSD 4, Section 9-19-2w5, is drilling at 4,655 feet. South West Petroleum Co.'s No. 2, Section 8-19-2w5, is standing at 5,407 feet. In the far south, Sterling Pacific Oil Co.'s No. 2, LSD 10, Section 33-18-2w5, is drilling at 2,168 feet.

Outside Turner Valley, Imperial Oil, Ltd., has only one active test, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, on the Lethbridge structure. This test is at 3,311 feet and preparing to resume after running 10-inch casing.

South Turner Valley

In South Turner Valley, Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, is drilling out the plug after cementing 13⅜-inch casing around 2,670 feet. This test, offsetting Mercury's No. 1 producer to the south, is being completed by S. G. Carscallen and associates of Calgary. Miracle Oils' No. 2, LSD 16, Section 5-19-2w5, is drilling in the Kootenay formation at 3,596 feet, after changing to rotary outfit. Miracle's No. 3, LSD 11, Section 4-19-2w5, is drilling at 2,639 feet.

In the extreme south end of the field, Mar-Jon-Freehold's No. 1, LSD 9, Section 28-18-2w5, is drilling below 1,110 feet. This is the farthest south test in the field, and practically an offset to Merland Oil Co.'s No. 1.

Central Turner Valley

In Central Turner Valley, British Dominion Oil & Development Corp.'s No. 2, LSD 6, Section 12-20-3w5, has been deepened to the old production level in the lime and is now cleaning out after a shot.

Vulcan Oils, Ltd., is planning to limit its activities for the present to handling production of its two wells in LSD 11, Section 13-20-3w5, in the north end of the Central Turner Valley Field. Vulcan's No. 1 was one of the earliest Turner Valley tests to get crude naphtha production in the deep lime. It was at one time delivering around 100 bbls. a day, but is now making between 6 and 7 bbls. Vulcan's No. 2, same LSD, was carried to the lime but after a succession of drilling troubles was abandoned last year at 5,030 feet. Vulcan's No. 3 was started last year and recently got a satisfactory light crude production, around 50 bbls. a day, from a horizon at 3,100 feet. Production will be taken from this depth for the time being, and the hole later carried deeper if necessary. The company holds 440 acres in Turner Valley, 640 acres at Keho Lake, 80 acres on the Highwood structure, 320 acres in Red Coulee, 320 acres in Eyremore, 260 acres in Kirkaldy and 80 acres in Steveville.

North Turner Valley

In North Turner Valley, United Oils' No. 4, LSD 2, Section 24-20-3w5, has resumed drilling after cementing in the lime at 5,700 feet.

Tests in the Foothills

In the Moose Mountain district, Graystone Consolidated's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, is reported resuming drilling at 4,163 feet after running cement to overcome a bad caving. Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is completing a fishing job at 3,184 feet.

Farther south, between the Moose Mountain and Waite Valley structures, Cotton Belt Mines' No. 1 at Fisher Creek, LSD 5, Section 21-21-4w5, has finished a protracted fishing job and resumed drilling around 850 feet.

On the Watson structure, Raven Oils' No. 1, Section 20-9-2w5, is reported resuming work.

On the Aldersyde structure, south of Calgary, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is reported drilling below 4,990 feet. The well has some gas at this depth.

On the Pincher Creek structure, Alberta Pacific Consolidated's No. 2 Weymarn, LSD 5, Section 7-6-1w5, is drilling below 3,357 feet.

On the Moose Dome, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, is reported rigging up diamond drill outfit to resume in the Devonian lime at 2,835 feet.

Hudson's Bay Tests

In the Castor district, Hudson's Bay Oil & Gas Co.'s No. 1 Paintearth, LSD 5, Section 27-39-15w4, is drilling 8-inch hole in the Devonian limestone at 4,520 feet.

In the Keho Lake area, southern Alberta, Hudson's Bay's No. 1 Keho, LSD 2, Section 17-11-22w4, is reported drilling out cement at 4,234 feet after drilling through the Bentons, in which a good show of high-grade crude, approximating commercial production, was encountered in two horizons at 3,680 and 3,776 feet.

Shot for Taber Well

In the Taber district, Alberta Pacific Consolidated's No. 1 Cole-Hunter, LSD 3, Section 11-10-17w4, is reported to have been given a small shot after drilling to around 3,600 feet. Just above this depth a show of high-grade crude with some gas was reported and it was decided to test the sand before going deeper. It is unofficially reported that if the shot fails to develop commercial production the test will be carried to 4,000 feet.

Following the shooting of the Cole-Hunter well, Alberta Pacific's No. 1 on the Spring Coulee structure will also be given a shot. This test is down close to 6,000 feet and has got small shows of oil and gas at a number of horizons.

Red Coulee Field

On the Montana end of the international Red Coulee structure, Askalta Oils' No. 1 Cosmos is drilling open hole after setting 8-inch pipe at 2,267 feet and is reported close to the producing sand. Preparations are being made for handling production.

Border Fields

East of Coutts, Mayland Southern's No. 1, LSD 13, Section 4-1-0w4, on the Alberta end of the Reserve Dome is reported to have resumed drilling after setting casing, and is down around 2,000 feet.

On the Rogers-Imperial structure, Range Oil & Gas Co.'s No. 1, LSD 9, Section 29-1-11w4, has been overhauled and reconditioned in preparation for winter gas deliveries. A slight water encroachment and a flow of sulphur gas were shut off.

Twin River Test

On the Twin River structure, northwest of the Red Coulee Field, Parco Oil Co.'s No. 1, LSD 16, Section 34-1-20w4, is reported resuming after setting 21½-inch casing at 230 feet.

Dalco Test Abandoned

On the northwest extension of the Red Coulee structure, in the Milk River area, Dalco Oil & Gas Co.'s No. 2, LSD 7, Section 19-2-17w4, is being abandoned at 3,150 feet. At this depth the test was some distance in the limestone, and geological advice did not favor further drilling. Dalco's No. 1, LSD 4, Section 11-1-16w4, in the Red Coulee Field farther east, was abandoned last year after failing to get production.

Crude Oil From Lime

In North Turner Valley, Model Oils, Ltd., has made application to the Alberta provincial government for exemption from the 40 per cent proration on the ground that Model's No. 1, LSD 8, Section 22-20-3w5, is a crude oil producer and not a naphtha well. The well got production in the crude lime at 5,897 feet and started as a naphtha well making around 90 to 100 bbls. a day. With continued production the recovery increased to around 165 bbls. a day while at the same time the quality declined to a grading approximating the Turner Valley light crudes. The gas flow is stated to be under 3,500,000 feet a day. In the normal Turner Valley producers, light crude has been met in the Kootenay. Blairmore and Fernie formations with crude naphtha recovery secured by separators from the wet gas in the Madison lime. The only instance of crude naphtha being obtained from an overlying horizon was in Merland's No. 1 well, in South Turner Valley, where a heavy, but short-lived, gas flow from the Dalhousie sand yielded a fair crude naphtha recovery for a few days. Model's No. 1 in the north end of the field has reversed the situation and is the only Turner Valley well to produce crude oil from the lime.

Medicine Hat Gasser

In the Medicine Hat Field, another test drilled by the municipality in the new producing area 2½ miles north of the city has blown into production with a flow of more than 3,500,000 feet, which deepening will likely increase to 4,000,000 feet. The first test in this area was finished last March, with a production of 2,800,000 feet a day, it being one of the largest wells ever drilled in the Medicine Hat Field. A third well is now being drilled in the same area, the city planning to build up a substantial reserve over and above the immediate needs of the municipal gas system.

British Columbia Test

In the Cariboo district, British Columbia, the Patrick Syndicate's No. 1 test on the Australian Ranch near Quesnel is reported to have recovered lost tools and drilled down to 1,100 feet where a second oil show was met. The first oil show was encountered at 820 feet, but considerable drilling trouble was subsequently met in attempting to deepen the hole. The test is now waiting for casing before drilling deeper into the sand.

Manitoba Drilling

Commonwealth Petroleums' No. 2, Section 26-2-9WPM, in the Manitou district, southwestern Manitoba, is at 725 feet and working to overcome quicksand. Similar conditions were encountered at approximately the same depth in Commonwealth's No. 1 which finished around 1,200 feet with a fair gas production.

Ontario Operations

In Raleigh Township, Kent County, Olga Oil & Gas Co.'s No. 1, SW, Lot 20, Concession 8, is drilling below 900 feet. Location is about 6 miles north of the nearest producer in the D'Clute Field, and production is expected around 1,800 feet. In the Dover Field, Olga Oil & Gas Co.'s No. 4, Stevens farm, has been connected with the Union system and is now delivering gas. Production comes from the Trenton limestone with rock pressure reported 1,100 pounds. In addition to the drilling being done by the Union Natural Gas Co., Olga Oil & Gas Co. is reported financing for a test of its own acreage in Kent County.

REFINERY IN DESERT

(C) P. and A. Photos.

Destroyed romantics: In the middle of the Arabian desert are the petrol refineries.

USE NATURAL GAS TO MANUFACTURE WEATHER

One of the largest potential and most rapidly developing new markets for natural gas is in "weather manufacture" or artificial refrigeration other than for food preservation, according to the current bulletin issued by Appalachian Gas Corp. "This science, even in its present infant stage, is already saving American industry over $15,000,000 annually," says the article.

"The need for artificial refrigeration, whether for personal comfort in theaters, office buildings or restaurants, or in industrial establishments such as knitting mills where regulated temperature boosts output by reducing yarn breakage, is becoming daily more apparent. Executives who have inquired into installation costs are generally under the impression that operating charges are higher than they actually are; in fact such costs are almost trivial. Coupled with the improvements which are constantly being introduced, it is safe to assume that the next two years will witness a great impetus in the artificial refrigeration industry which is bound to be reflected in increased gas sales, gas being the most convenient medium for use in absorption process cooling.

"But the future of artificial refrigeration is not confined to commercial plants and public buildings, as it is only a matter of time before the gas-activated cooling system will become standard equipment in homes and apartment houses. The committee on industrial gas research of the American Gas Association has voted a $15,000 appropriation for three experimental installations of house cooling systems, which indicates that progress in this development is nearing its final stages. Home cooling by gas is extremely important to natural gas companies, because of its effect on the summer load valley, and particularly in the South because of large potential sales."

WILL ASSURE GAS SUPPLY

Completion of the second Kettleman Hills gas line by November will assure the southern part of California an abundance of gas during the winter season of peak consumption. The present supply is ample for summer needs but would not be enough for the peak.

LA.-ARK. FIELDS

(Continued from Page 43)

Mimms, Mary Smith Survey, set 10-inch casing at 393 feet; H. P. Glidden's No. 1 Pickering Lumber Co., Jonas Harrison Survey, drilling 3,000 feet in broken chalk; Henry Maulding has installed a heavy rig on his No. 1 Frost Lumber Co., A. D. Fountain Survey, and is drilling in black shale at 2,441 feet; the Sloan Prospecting Co.'s No. 1 Sandford, M. M. Vann Survey, is reaming with a total depth of 3,497 feet, and Tenant and others' No. 1 J. Henry, C. Z. Walker Survey, began on July 15, set 10-inch surface casing at 120 feet and are drilling at 1,300 feet. In Harrison County, the Ryan Consolidated Petroleum Corp. is drilling below 5,000 feet on its No. 1 Key, E. Carroll Survey, a test which will be carried to 5,300 feet or deeper. No shows of any kind have been encountered in this test which is about 20 miles west of Trinity production in the Bethany Field of Panola County. C. E. Murdock, in Cass County, has decided to make a deep test of his No. 1 First National Bank, Evans Watson Survey, which has been shut down for some time at 3,990 feet. Drilling has been resumed, the latest report being in hard lime at 4,235 feet. The log of this well shows that it tested dry through a drill stem test at 3,860 feet with the top of the Georgetown lime being encountered at 3,970 feet.

Liveiler Operations in Sight

With an increase in the price of crude posted this week by several of the major companies covering the fields of North Louisiana and Arkansas, more activity is expected soon in these sections. Many wells in the proven fields, particularly Zwolle, have reached the sand and are only waiting to be rigged up on the pump, but owing to the recent price cuts the lifting charges far exceed the market price. The abandonment of small pumpers continues unabated throughout most of the pools, Arkansas reporting 34 abandoned wells during the last week, most of them in Union County. The Urbana Field in this county is practically shut down, and the same applies to the Cotton Valley Field in North Louisiana. The shallow Bellevue Field in Bossier Parish, as reported last week, has experienced a complete shutdown.

Daily Average Production

There was a net decrease of 970 bbls. daily in the fields of North Louisiana and Arkansas during the last week, each state losing 485 bbls. Daily average runs for the several pools follow:

NORTH LOUISIANA	
Caddo, light	6,760
Caddo, heavy	2,455
Homer	2,860
Haynesville	5,165
DeSoto and Red River	2,495
Elm Grove	460
Cotton Valley	420
Urania	3,870
Pleasant Hill	370
Sarepta-Carterville	970
Zwolle	7,140
Holly	475
Total North Louisiana	33,440
Total previous week	33,925
Decrease	485
ARKANSAS	
El Dorado	3,520
Smackover, light	3,680
Smackover, heavy	28,710
Stephens	580
Nevada	1,120
Lisbon	560
Champagnolie	2,315
Urbana	100
Total Arkansas	40,585
Total previous week	41,070
Decrease	485
Total both states	74,025
Total previous week	74,995
Decrease	970

SOUTHWEST TEXAS FIELDS

(Continued from Page 46)

the gas pressure in getting into the hole with tools.

Houston Oil Co.'s No. 2 Rand Morgan, a gas well making a little oil at 4,097 feet and deepened to 6,375 feet, plugged back and is now ready to swab and be brought in again at the old depth of 4,097 feet. Gulf Coast Oil Co.'s No. 1 Harrell was also completed at 4,095 feet and it is now deepening and has found two or three new sands but no production down to 4,651 feet.

Southern Crude Oil Purchasing Co.'s No. 1 Stratton, several miles south of the Agua Dulce Field in western Nueces County, reached contract depth at 3,518 feet and is standing. It may possibly be deepened.

In the Laredo district only a few tests are being watched at this time. Southern Crude Oil Purchasing Co. and Camp's No. 1 Hubbard, 2 miles east of the Schoolfield-O'Byrne Pool, started losing returns at about 200 feet and is now down 565 feet and hauling in mud.

Little Activity Otherwise

Outside of this and that the Humble is still making hole in the No. 50 Kohler in the Kohler Pool in Duval County, last reported at 6,900 feet, the deepest test in the district, there is little activity in the Laredo district.

Witherspoon Oil Co. has taken over acreage in the Penn unitized block in eastern Bexar County and has completed the No. 1 Ramzinski at 1,500 feet for 15 bbls. in the Taylor marl. This structure was worked out with the idea of getting an Edwards lime field, but two tests to the Edwards failed to get production. Some think they were on the downthrow side of the fault. The shallow production has been proven and Witherspoon will develop this, but in addition it is likely that another Edwards lime test may be made.

In spite of dull times it is likely that important tests will be going on along the Balcones fault during the summer months. In addition to Ralph R. Lewis' No. 1 McGee in Caldwell County southwest of the Dale Field, the Rayor drilling west of Luling, W. J. Walton in Guadalupe southwest of the Darst Creek Field and Witherspoon in eastern Bexar County, there are the Sun Oil Co. and the Penn Oil Co. core testing across the Bexar County line to the east in Wilson County and Humble Oil & Refining Co. has two blocks in western Wilson to be core tested. Farther west in the northeastern part of Frio County where Wray & Dunbar got a showing of oil in Edwards but were unable to make a well, it is understood there is likely to be another test on new geology and in western Bexar County where the Pennsylvania formation is within reach of the drill it is understood there is also to be another test on a major structure.

OKLAHOMA FIELDS

(Continued from Page 42)

A and B wells on these dates will be the potentials for the month of August.

Leases in the Wewoka Townsite Pool will take a three-hour open gauge, 7 a.m. to 10 a.m. August 1. Eight times the amount of oil produced will be considered the daily potential production.

The East Earlsboro extension and the flush wells in the Carr City Pool will be open to full capacity for one day from 7 a.m. August 1 to 7 a.m. August 2.

The West Chandler Pool in Lincoln County, which has been under curtailment of 100 bbls. per well, has been further curtailed. The Coline Oil Co. has shut in all its wells in the field. The field has a potential of approximately 32,000 bbls. per day from 26 wells and it has been producing around 1,629 bbls. a day previous to the Coline Oil Co. shutting in its wells. The daily production has been reduced from 4.23 per cent to 3.72 per cent. Some estimate that double the amount of wells could be drilled on proven locations and the potential could be increased to 60,000 bbls. a day. The pipe line outlet in the area is also limited to approximately 6,000 bbls. a day.

A survey of the Greater Seminole area shows that the price of crude oil has reduced the drilling operations in the area to the lowest since that field was discovered. The survey shows that the area has one rig shut down, one test partly drilled and shut down, and two other tests drilling. Seminole County also has three old producers which are being drilled deeper.

Okfuskee County has one test drilling and one shut down. Pottawatomie County has one test shut down. Hughes County has one location, one test shut down and two others drilling. Pontotoc County shows two drilling tests and one rig.

Interesting Tests

Stanolind Oil & Gas Co.'s No. 1 Burk, NW cor. SE, Section 32-5-5, in the Beebe area of Pontotoc County, was expecting to reach the Wilcox sand in a few days. It was drilling in the Simpson sand at 2,407 feet. The top of the Simpson sand was found at 2,400 feet. It swabbed and flowed 192 bbls. of oil in nine hours. The same company's No. 2 Roberts, NE cor. SW NE, Section 32-5-5, was drilling in the Hunton lime at 2,102 feet. The top of the Hunton lime was found at 2,086 feet.

In the East Little River Pool, Mid-Continent Petroleum Corp.'s No. 13 Smith, SE cor. NW SE, Section 5-7-7, is drilling deeper. The old total depth of the well was 3,198 feet and it was drilling at 3,214 feet.

In the area south of the Mission Pool, G. E. Burgher Oil & Gas Co. and others' No. 1 Charlie, SW cor. NW SE, Section 18-6-6, was fishing for drill pipe at a total depth of 3,923 feet.

Leasing Operations Quiet

In the Oklahoma City area the town lot acreage is being watched and lots are being leased to fill in the required amount to fill in blocks on which a test well can be drilled. Payne, Logan and Garfield Counties have had some activity during the last few weeks, in unit blocks.

In the eastern part of the State the Five Civilized Tribes has announced it would hold its lease sale August 6. It is the first sale in the last 60 days.

A recent survey indicates the activities in the following counties in the State: In Payne County the Shell Petroleum Corp. has taken a 10-year lease on the W half SE Section 24-19-3, and the Gypsy Oil Co. has leased the W half NW Section 3-19-2, and E half NW Section 7-18-3, and W half NE Section 12-18-3. In Pottawatomie County the Gypsy Oil Co. has taken the following leases, E half NW Section 6-9-4, N half N half SW Section 9-9-4, the N half SE and part of the NE SW Section 25-7-2, the W half SW of Section 24-11-6, and the S half SE Section 21-6-4.

In Cleveland County G. W. Thornton has taken a lease on the NE Section 13-10-4w, the E half NW Section 21-10-4w, E half SW Section 1-10-4w. The Gypsy Oil Co. has leased the S half NE Section 21-10-5w. In Washita County, in the western part of the State, J. L. Cox has leased NW Section 20-8-18w.

In the northwestern part of the State companies are still turning back acreage. In Harper County several thousands of acres, some in blocks and other checkerboard acreage, has been surrendered during the last month. The majority of the acreage is being surrendered by the major oil companies.

In Kingfisher County, which is a wildcat area without any production, acreage is being released in Townships 15-7w, 18-6w, 18-7w, 19-6w and 19-7w.

Greater Seminole Production

The production from the Greater Seminole area for the week ending July 23 was approximately 175,915 bbls. The first 12 pools listed below comprise the Seminole area which averaged 125,280 bbls.

Pool—	Bbls.
Little River	23,135
East Little River	4,010
Carr City	12,790
Maud	2,230
Mission	9,035
Bowlegs	14,300
Earlsboro	17,280
South Earlsboro	3,710
East Earlsboro	17,635
Seminole	15,365
East Seminole	1,730
Searight	4,010
Total	125,280
Allen	11,930
Asher	690
Wanette	6,010
Konawa	3,930
Sasakwa	2,065
St. Louis-Pearson	30,910
Grand total	175,915

Oklahoma City Shipments

The total shipments from the Oklahoma City Field for the week ending July 25, were 862,329 bbls. including tank cars. The shipments declined 332,516 bbls. from the previous week. The shipments by companies were as follows:

Company—	Bbls.
Champlin	32,238
Continental	10,622
Empire	176,869
Magnolia	39,150
Oklahoma	9,482
Operators	46,059
Prairie	11,185
Shell	46,445
Sinclair	160,866
Stanolind	68,125
Tidal	43,794
I.T.I.O.	92,259
Crude Oil	15,280
Petroleum P. L.	17,537
Century	15,511
Wilcox	11,736
Capitol	15,169
Total	862,329

The daily production and pipe line shipments from the Oklahoma City Field for the week ending July 25 were as follows:

Date—	Prod.	Wells	Shipments
July 19	99,607	65	119,842
July 20	64,566	56	124,938
July 21	128,506	75	127,681
July 22	144,555	68	124,780
July 23	151,960	70	120,882
July 24	121,544	58	118,832
July 25	82,277	42	124,763

Creek County

O. C. Baltzell and others' No. 1 Land, SW cor. NW, Section 12-18-12, is rigging up. C. O. Buckles' No. 1 A. Conner, NE cor. SE NW, Section 9-19-7, is dry and abandoned at 2,999 feet. Hoover Brothers' No. 1 Briggs, NW cor. NE NW, Section 36-19-8, has been completed for 2,000,000 feet of gas in sand 2,177-85 feet. Burton & Holmes' No. 1-A Barnett, NE cor. SE NW, Section 7-19-10, made 500,000 feet of gas in Skinner sand 1,915-34 feet and Red Fork sand 2,063-90 feet, total depth 2,153 feet.

Muskogee County

H. L. Jolly and others moved a machine in for No. 2 W. Brown, NE cor., Section 8-15-18. P. Boyle and others' No. 1-A Barnett, NW cor. SE NW, Section 35-16-15, has been completed for 1,000,000 feet of gas in sand 1,131-42 feet after plugging back from 1,693 feet. C. W. Brown's No. 2-A Smith, SW cor. NE NW SW, Section 14-15-15, is dry and abandoned at 812 feet.

Okfuskee County

C. Fleming and others' No. 1 Fife, NW cor. NE NW, Section 12-10-11, has been abandoned at 2,075 feet.

Oklahoma County

Wilcox Oil & Gas Co. and J. Diffie's No. 1 Terminal, CSL NE SW NW, Section 3-11-3w, Oklahoma City Pool, made 5,953 bbls. in four hours from Wilcox sand topped at 6,355 feet, total depth 6,485 feet. Capitol Producing & Refining Co.'s No. 1 Refinery, CNL SE NE SE, Section 4-11-3w, topped Wilcox sand at 6,515 feet, drilled to 6,550 feet and made 1,031 bbls. in 2½ hours. Indian Territory Illuminating Oil Co.'s No. 1 Stevens, NE cor. NW SW SE, Section 15-11-3w, has been completed at total depth 6,498 feet, making 1,020 bbls. in 7½ hours.

Okmulgee County

Trident Oil Co.'s No. 7 A. Harris, CSL NE NE, Section 1-14-14, is spudding. No. 4 A. Harris, CSL NE NE, Section 1-14-14, twin to No. 7, has been completed for 5 bbls. in sand 1,082-96 feet.

Payne County

Hilton Phillips' No. 1 Workman, NE cor. NW SE, Section 24-18-4, is dry and abandoned at 3,783 feet.

Texas County

Western Production Co. made location for No. 1 Jackson, C SW, Section 1-3-14ecm.

Tulsa County

Deems & Bradshaw's No. 1 Grayson, SE cor. NW NE, Section 18-19-14, has been abandoned at 1,345 feet without finding sand.

GAS RATES REDUCED

HELENA, Mont., July 27.—Reductions in rates for natural gas in several cities and towns served by the Billings Gas Co., ranging from 20 per cent for small consumers to 9.9 per cent for large consumers, have been made through agreement by the company and the Public Service Commission, according to announcement by the commission.

ECONOMICS OF SKIMMING, CRACKING OPERATIONS

(Continued from Page 30)

finer may pay for crude is "X." This is a straight-line function and is represented in Figure 3 where a range of manufacturing costs have been assumed. It should be noted that the manufacturing cost will vary considerably with the operation; that is, the cost per barrel for nonresiduum operation may be 1.5 times that for residuum operation and 8 times that for skimming. At the present time, with the industry in the most depressed state, it is probable that refiners can do little better than break even when simultaneously skimming and cracking crude and that a loss is incurred if skimming only. Of course this does not apply to those refiners who are temporarily so strategically located that they may buy distress crude at the well for abnormally low prices. This condition now exists in the East Texas area.

It is probable that an appreciable percentage of refiners, whose cracking operations are not as efficient as they might be, actually show a loss. In many cases, after superficial cost study, the cracking stills have been shut down. This short-sighted policy fails to appreciate that the overhead costs go on regardless of whether or not the unit is producing. Therefore, even assuming that all other costs may be eliminated, there remains to the average refiner, as a guess, 40 per cent of the manufacturing cost as debits, with no balancing credits when the unit is not operating. The operation may, therefore, show a loss equivalent to 40 per cent of the total manufacturing cost before it would be advisable to shut down. Even in the latter case, the intangible value of maintaining the organization should dictate a policy of continued production. Only where the credits are appreciably lower than the debits of raw material cost plus manufacturing costs, less overhead, should the plant remain idle.

It is obvious that this hypothetical refiner, if he is only skimming crude, must discontinue the practice, and if he wishes to exist, must install cracking capacity to supply his gasoline demand. Accordingly, as the price of crude increases with no appreciable change in the price of refinery products, the country's cracked gasoline production must increase until the refiners, who only skim, are forced out of business.

The most interesting and most important relationship between gasoline and crude price on cracked gasoline production is involved in the profit per day or rate of return on investment which the refiner may expect with different methods of gasoline production. While we have shown the break-even relation in prices of crude and gasoline at assumed manufacturing costs, the figures have not involved the crude requirements of each method of operation. For the same investment (or in the case of cracking, for the same still) skimming will process 5 bbls., cracking to fuel oil residuum 2 bbls., and cracking to nonresiduum 1 bbl. of crude, respectively, per unit of time. Therefore, if skimming can show a profit per barrel equal to one-fifth, or if cracking to fuel oil residuum can show a profit per barrel equal to one-half that of cracking to nonresiduum, they will be equally as profitable as the latter operation. Curves showing the daily profit in abstract units from a still which will consume 2,000 bbls. per day cracking to coke, 4,000 bbls. cracking to fuel oil, and 10,000 bbls. skimming to fuel oil are shown in Figure 4.

It may be noted from these curves that at the present prices of crude and gasoline, it is roughly about equally profitable to crack to a coke or fuel oil residuum. Note the flatness of the skimming curves—only a relatively small variation in the price of crude measures the difference between profit and loss. The cracking to fuel oil residuum curves are somewhat less flat, but the cracking to nonresiduum lines have a slope such that unless the crude-gasoline price ratio is abnormally high, this operation will always show a profit. In general, the spread of the lines between profit and loss for cracking to nonresiduum is double that for cracking to fuel oil residuum. This means that cracking to coke residuum is the more conservative operation, so that while profits are less during periods of high gasoline prices, during periods of low gasoline prices and comparatively high crude prices, there is also less likelihood of loss. If, however, the price of crude is lowered with no corresponding reduction in the price of gasoline (3.5 cents per gallon), a point will be reached where first cracking to fuel oil residuum and finally skimming will be the most profitable.

Figure 5 shows the economics of gasoline production based upon the yearly average prices for gasoline and crude during the past 12 years. From the allowable manufacturing costs to break even with each operation, for this particular refiner, it is seen that since 1923 it has been unprofitable to skim purchased crude and that since 1924 it is probable that it has been more profitable to crack to a nonresiduum than to a fuel oil resid-

TABLE 3—PROFIT CALCULATIONS PROCESSING 1 BBL. OF FUEL OIL

	Cracking to fuel-oil residuum		Cracking to non-residuum	
	Yield	Dollars	Yield	Dollars
Debits:				
Fuel oil @ 0.010	42 gals.	0.42	42 gals.	0.42
Delivery cost		0.36		0.36
Manufacturing cost		A		B
		0.78 + A		0.78 + B
Credits:				
Gasoline @ 0.035	23.3 gals.	0.815	39.0 gals.	1.01
Fuel oil @ 0.010	16.5 gals.	0.165	0.0 gals.	0.0
Gas @ 0.142	0.260 M.C.F.	0.04	0.736 M.C.F.	0.106
Coke @ 2.186	0.0 ton	0.00	0.031 ton	0.068
		1.02		1.184
Profit per barrel of fuel oil charge		0.24 — A		0.40 — B

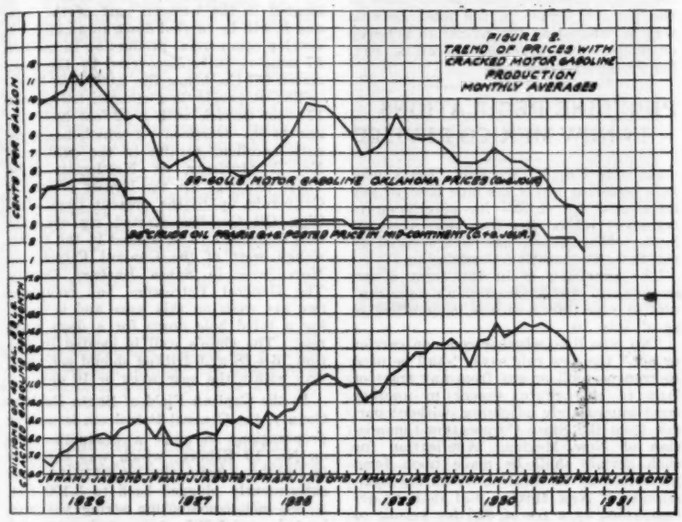


FIGURE 2.
TREND OF PRICES WITH CRACKED MOTOR GASOLINE PRODUCTION MONTHLY AVERAGES
58-60 U.S. MOTOR GASOLINE OKLAHOMA PRICES (Bbl. Jour.)
36° CRUDE OIL PRAIRIE G+G POSTED PRICE IN MID-CONTINENT (Oil & Gas Jour.)
CENTS PER GALLON
MILLIONS OF BBLS. OF U.S. CRACKED GASOLINE PER MONTH
1926
1927
1928
1929
1930
1931

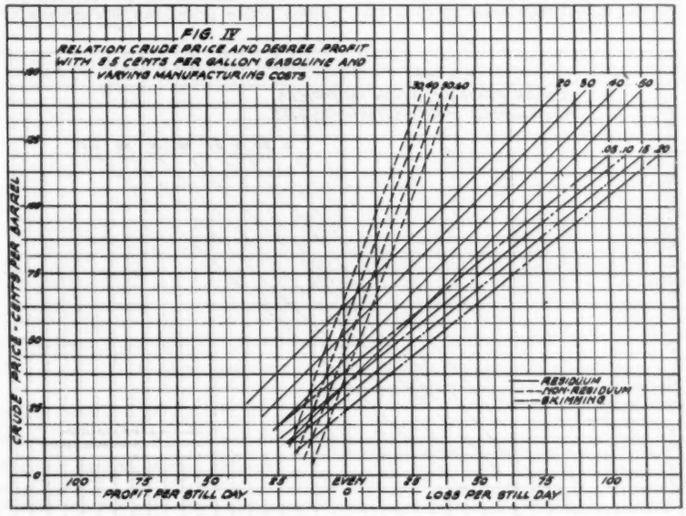


FIG. IV
RELATION CRUDE PRICE AND DEGREE PROFIT WITH 5.5 CENTS PER GALLON GASOLINE AND VARYING MANUFACTURING COSTS
CRUDE PRICE - CENTS PER BARREL
RESIDUUM
NON-RESIDUUM
SKIMMING
PROFIT PER STILL DAY
LOSS PER STILL DAY
EVEN

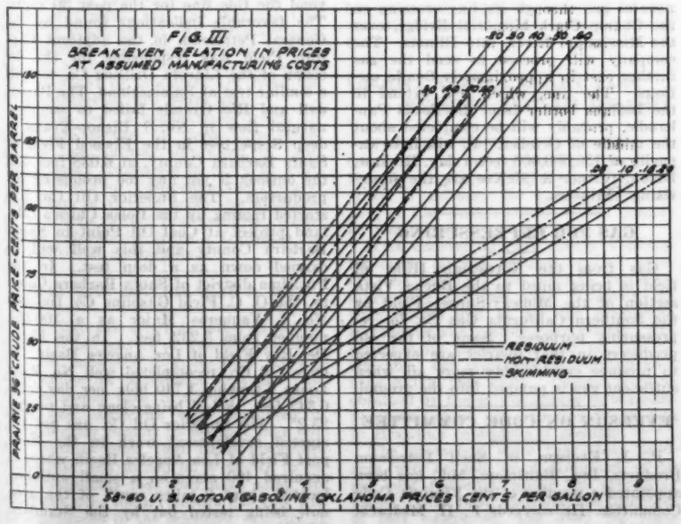
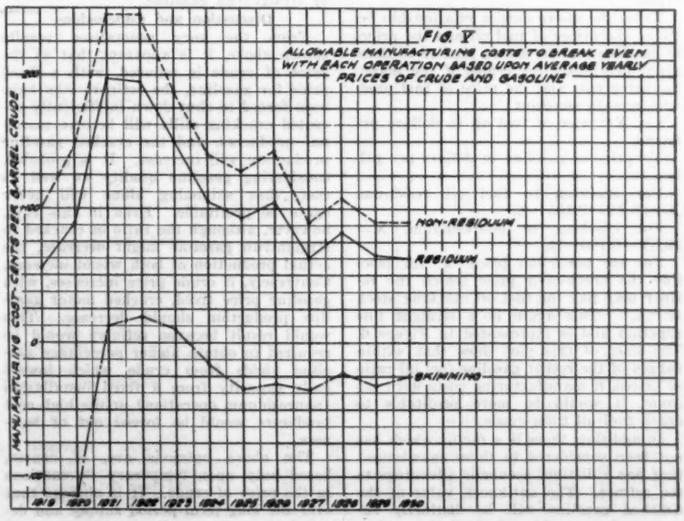


FIG. III
BREAK EVEN RELATION IN PRICES AT ASSUMED MANUFACTURING COSTS
PRAIRIE 36° CRUDE PRICE - CENTS PER BARREL
RESIDUUM
NON-RESIDUUM
SKIMMING
58-60 U.S. MOTOR GASOLINE OKLAHOMA PRICES CENTS PER GALLON

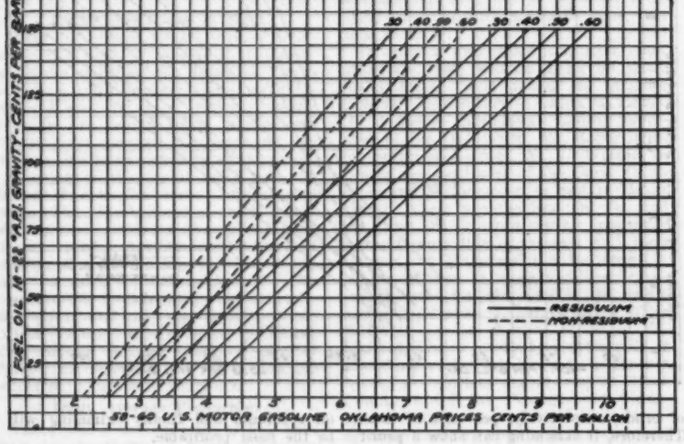


uum. The closer the refiner approaches a breakeven basis in his operation the more advantageous cracking to coke residuum becomes.

Processing Fuel Oil

As a matter of interest, in order to determine whether cracking crude (with simultaneous skimming) or cracking fuel oil is more profitable, calculations have been made in a manner similar to that used previously and based upon present prices. Assuming that the cracking stills will consume the same quantity per day of fuel oil as they did the topped crude in the crude cracking operation, and that the straightrun gasoline is removed from the crude without increasing operating cost, the operating cost per barrel of fuel oil will be 1.54 times that of cracking crude. The yields were obtained from actual experimental operation when cracking a 24° A.P.I. fuel oil.

The profit calculations on this basis are shown in Table 3, and compared with Table 1, they indicate that at the present time a slightly higher manufacturing cost per barrel is allowable to crack fuel oil than to crack crude. It is also shown that cracking fuel oil to nonresiduum allows a greater manufacturing cost per barrel than cracking it to fuel



oil residuum. However, it is probable that the manufacturing cost in running to coke is more than the 16 cents per barrel shown in the calculations over the manufacturing cost for cracking to fuel oil residuum. On the other hand, it is also probable that at the present time fuel oil is quoted at a price better than normal in relation to crude and gasoline prices. In general, it should be more profitable to crack fuel oil than to crack crude.

From the above data a relationship between the prices of fuel oil and the prices of gasoline may be drawn similar to those given previously for crude, if the manufacturing cost and the price of fuel products remain constant:

Let X = price of fuel oil in dollars per barrel.

Y = price of gasoline in dollars per gallon.

For cracking to fuel oil residuum, X = 23.3Y—0.155—A.

For cracking to nonresiduum, X = 29.0Y—0.186—B.

For any particular price "Y" for gasoline the break-even price which the refiner may pay for fuel oil cracking stock is "X." This again is a straight line function and is represented in Figure 6. The lines of this plot show that within ranges of the recent gasoline-fuel oil ratio of prices, if manufacturing costs were the same, it would be more profitable to crack fuel oil than crude.

In addition, there is a factor which has not been considered in these calculations that has a distinct economic advantage to the refiner. The antiknock value of the finished gasoline will be distinctly superior when cracking fuel oil than when simultaneously topping and cracking crude. The value of this additional antiknock is difficult to estimate. However, if the refiner ethylizes the gasoline, the reduction in this cost to him with an all-cracked product as compared to the blend of straightrun and cracked will be at least 1 cent per gallon. It should be noted that straightrun gasolines from the majority of United States crude sources cannot be ethylized since they require more than 3 cc. of tetraethyl lead—the maximum allowed by government regulation.

At the present time, with correctly designed and operated cracking stills, it is possible to produce a gasoline from Mid-Continent fuel oil which will have an antiknock value equivalent to the Ethyl Gasoline Corp. standard. This may be used either for ethylizing to a product better than standard, for direct sale as a premium fuel, or for blending with lower antiknock valued gasolines.

It is imperative to produce a gasoline with a comparatively high antiknock value in order to sell it without price sacrifice. Jobbers are buying gasoline on the basis of octane number and it is reported that cracked gasolines in the Mid-Continent area command 0.5 to 0.75 cents per gallon higher price than straightruns at the refinery. At the filling station in some parts of the country a low antiknock grade of gasoline is being sold at 2 cents below the price of the standard product. It is probable that in the future gasoline grades will be quoted on an octane number instead of a gravity basis, and that with the increasing tendency of automobile manufacturers to increase compression ratio, the minimum of these antiknock specifications will bar the sale of straightrun gasoline.

Discussion and Conclusions

From the very generalised results shown above, it is apparent that as the price of crude is reduced, with a fixed price for gasoline, the refiners who have been forced to shut down inefficiently operated cracking stills will become marginal producers, and the cracked gasoline production will increase. It is probable, considering gasoline quality as well as cost, that skimming alone will never again be profitable. Even in this case, however, although the ratio of cracked to straightrun gasoline might decrease, the actual production of both would increase. Conversely, if crude price increases, with gasoline price fixed, cracked motor gasoline production should decrease. This would result because refiners would be required to obtain higher percentage gasoline yields from crude which lowers daily capacity from a fixed installation (nonresiduum operation) or the high cost producers would be forced out of business.

The above opinions are, of course, based only upon temporary fluctuations in the price of crude. It is obvious that over the long term period supply and demand must fix gasoline production, and it should be noted, incidentally, that this supply and demand factor must be considered from a world-wide and not a United States viewpoint.

It is concluded that the production of gasoline, representing as it does the most important and most profitable of the refiner's operations, also presents to the conservation board its most urgent problem, and the most promising field for immediate consideration. Not only has the past decade witnessed an increase in the stocks of gasoline, but it has also witnessed a considerable increase in the stocks of fuel oil—a potential gasoline supply. Since the demand for gasoline is increasing faster than that for lubricating oils, and since by using modern methods of distillation it is possible to greatly increase the percentage yield of lubricating stock from crude, the amount of crude run directly in cracking stills will undoubtedly increase. The present extremely low market price for fuel oil, coupled with increasing production from residuum cracking, impressively emphasizes the importance of cracking to a coke or very heavy residuum. The considerations outlined confirm our original statement that proration with maintenance in the price of crude is the most feasible way of interesting the refiner in a heavy or nonresiduum cracking operation, and, hence, conservation.

PIPE LINE REGULATIONS IN NEW MEXICO REVISED

SANTA FE, N. M., July 27.—A new rule requiring interstate pipe lines to pay an annual fee of $25 for permission to transport oil or gas from any tract of land in New Mexico has been adopted by the State Corporation Commission.

The provision is in the form of an amendment to the commission's rules regulating pipe lines and was made effective as of July 10.

"No pipe line, whether common carrier or not," the new rule says, "shall be used to transport oil or gas from any tract of land in this State, except to another tract immediately adjoining, without permit from the State Corporation Commission of New Mexico. Application for such permit shall be made upon form prescribed by the State Corporation Commission of New Mexico, and shall be accompanied by a fee of $25 for permit to operate and each renewal thereof, and shall apply only to pipe line companies operating interstate."

It is further provided that each permit shall be valid for only one year and may be revoked if the commission finds that an operator is violating the conservation rules relative to oil and gas resources.

GAS MOVING EAST

The Panhandle Eastern Pipe Line Co., jointly owned by Columbia Gas & Electric Co. and Missouri-Kansas Pipe Line Co., has started the transportation of natural gas through its line crossing on the Champ Clark Memorial Bridge, over the Mississippi River, into Illinois. The company will proceed to send the gas further east in approximately 8-mile sections. The line, which will extend to the Indiana border from the Texas Panhandle, probably will be completed about the middle of October. It will have capacity of 130,000,000 feet a day. Brokaw, Dixon, Garner & McKee are the supervising engineers.

GAS FOR REPRESSURING

Gas from the Kettleman Hills oil field is being piped to the Buena Vista section of the Midway-Sunset Field by the Southern California Gas Co. for repressuring purposes. Some of the old producers in that district are expected to produce considerably more oil when sufficient gas is pumped into the ground.

EVERSON ON CODE COMMITTEE

P. J. Everson, of Shell Petroleum Products, Inc., Baltimore, Md., has been appointed a member of the Virginia Code Committee. He succeeds F. H. Medrach, resigned.

CALIFORNIA FIELDS

(Continued from Page 55)

making on No. 1 Alferitz, a wildcat in the Devils Den region of Kern County, which is pumping approximately 50 bbls. per day from the 1,600-foot level. The production of this well is showing an excessive cut and it is the present intention of the Standard to plug back a little higher in an effort to exclude this water.

Ventura Avenue

The Associated Oil Co. recompleted No. 4 Ventura Land & Water flowing 450 bbls. of oil cutting 25 per cent water, but developments indicate that further work will be undertaken on this well, which is located in the extreme eastern part of the Ventura Avenue Field. Drilling operations were concluded on this well at 7,032 feet and the hole was subsequently plugged back to 6,950 feet. The Superior Oil Co., in accordance with a recent deal, is making preparations to drill a new well on the Hartman lease of the Bolsa Chica Oil Co. in the Ventura Avenue Field. This project, No. 6 Hartman, is located in the western part of the lease and it will be carried down in an effort to develop commercial production in the new 57 zone recently discovered by the Associated Oil Co. below the 8,000-foot level.

The Superior has constructed a new 174-foot derrick with a 32-foot base similar to the oversized rig which has given such excellent results in the drilling of No. 3 Huffman at Kettleman Hills. These two rigs are the largest erected in California up to the present time. The Ohio Oil Co. has started rig construction for a test to be drilled in the Goleta slough west of the General Petroleum's More lease in Santa Barbara County. The General Petroleum has completed two gas wells on this lease and is carrying a third hole down for a deep Sespe test. The Ohio's well is located in Section 16-4-28 and drilling should get under way within the next week or 10 days.

In the Capitan Field of Santa Barbara County, the General Petroleum is making preparations to make a production test on No. 10 Erburu, which was bottomed in the Sespe formation at 3,112 feet and subsequently plugged back to 3,100 feet. A 6⅝-inch combination string has been landed at 3,095 feet and cemented through perforations at 2,735 feet. The Western Gulf has resumed drilling in No. 1 Bradley, a test being drilled in the Santa Maria area of Santa Barbara County instead of abandoning the project, as originally contemplated. The company is drilling ahead in the hope of penetrating the lower Monterey shale which should be accomplished somewhere around the 7,000-foot level. The Lincoln Drilling Co. is making preparations to drill a deep Sespe test in the old Summerland Field of Santa Barbara County where wells have been producing out beyond the tide line for the past 30 years. The favorable indications found by the General Petroleum in the adjacent Capitan Field was responsible for the decision of the Lincoln Drilling Co. to drill a similar test at Summerland. The Barnsdall and Rio Grande failed to secure a natural flow in No. 1 Bishop-Evans, a deep Sespe test in the Elwood Field of Santa Barbara County, at 6,038 feet and the outlook is not any too promising for production. The Superior Oil Co. has started rigging up the Bolsa Chica's tideland project at Coal Oil Point in Santa Barbara County and this well will be carried down as a deep test. In the Purisima district of Santa Barbara County, the O. C. Field Gasoline Co. finished No. 1 Vaqueros Major as a 100-bbl. pumper from 3,232 feet. In the Playa Del Rey Field of Los Angeles Basin the Ohio Oil Co. recompleted well No. 2 on Lease I flowing 1,740 bbls. per day from 6,342 feet, the oil being clean and testing 23.2°. The Superior Oil Co. has not yet started development work in the Newport Field of Los Angeles Basin where it acquired 400 acres on a small anticline located about 2 miles south of the area now being tested out by the Standard Oil Co.

OIL FIELD VALUATIONS DECLARED TO BE HIGH

BAKERSFIELD, Calif., July 27.—Basing his plea on oil depletion, high production costs and a drop in the price of oil which has cut profits to nothing, Morgan Doyle, representing the Associated, Tide Water, Reward, New Hope and Pioneer Midway Consolidated oil companies, asked the board of supervisors to make substantial cuts in assessed valuations.

Doyle said that the oil companies are willing to sell the properties under consideration at the same valuation he asks the board of supervisors to put on them. Factors which Doyle cited for the board's consideration are: The depletion of the oil since the assessments of 1925, when County Assessor Burke conceived his oil assessment formula, and the drop in the price of oil from $1.25 a barrel to a current value which does not warrant production, with a 20-cent tax and a production cost of 50 cents a barrel.

The disparity between the production costs and the selling price of oil is so great that the profit is a minus quantity and yet the oil land is assessed on its valuation of 1925, minus a 5 per cent reduction, Doyle said.

SANTA ANA, Calif., July 27.—Representing a drop of $19,760,245, the assessed value of property taxed by Orange County this year was announced today as $157,696,385. The drop is brought about by two factors, a general 10 per cent cut by County Assessor James Sleeper because of business conditions and a loss on oil property valuation.

Sleeper roughly estimated today that the loss on oil properties is between $7,000,000 and $8,000,000 with the 10 per cent cut accounting for the rest of the drop.

VENTURA, Calif., July 27.—The board of supervisors, sitting as a board of equalization, denied the application of the Associated Oil Co. for a $150,000 reduction of its taxes.

GAS SERVICE EXTENDED BY STANDARD OIL UNITS

Since the first of 1931 subsidiaries of the Standard Oil Co. of California have brought natural gas service to 19 communities in California, Oregon and Washington which previously were without gas.

The company last year announced its entrance into the bottled gas industry and formed three corporations for the purpose of installing so-called butane-air gas plants in communities which had never before enjoyed the benefits of gas service and which are not in a vicinity where they can economically be connected with gas pipe lines.

The three companies are the Natural Gas Corp. of California, the Natural Gas Corp. of Oregon and the Natural Gas Corp. of Washington. All three are now subsidiaries of the Pacific Public Service Co., a utility holding company which was acquired by Standard Oil from the Fitkin interests two years ago.

Besides the 19 communities which already are served by these three companies, the Natural Gas Corp. of California holds franchises to serve 19 additional towns in California, the Natural Gas Corp. of Oregon holds five additional franchises in that State and the Washington subsidiaries holds a franchise for an additional community.

FIRST GAS METER WAS A MAN

The first gas meter in America was a man. When gas first was introduced it was not measured in cubic feet. It was sold under an agreement that the customers would turn it off at a specified time, and inspectors were appointed to make nightly rounds to see that they did. Old records show that these inspectors frequently had to rap on windows to remind customers that they were using gas after the time limit. Scenes like this will be reproduced in the scientific exhibits at the World's Fair in Chicago in 1933.

A. N. HORNE CHAIRMAN MID-CONTINENT A.S.M.E.

A. N. Horne, superintendent of the Empire Pipe Line Co., Bartlesville, Okla., has been installed as the new Mid-Continent section chairman of the American Society of Mechanical Engineers. Mr. Horne succeeds A. J. Kerr, Midwest Equitable Meter Co., Tulsa. Other officers of the executive committee for the Mid-Continent section are: H. F. Brindel, vice chairman, Gypsy Oil Co., Tulsa; J. M. MacGregor, secretary, Taubman Supply Co., Tulsa; H. W. Manley, treasurer, Barnsdall Oil Co., Tulsa; W. H. Stueve, Oklahoma vice chairman, Oklahoma Gas & Electric Co., Oklahoma City; R. W. Curran, Arkansas vice chairman, Little Rock Gas & Fuel Co., Little Rock, Ark., and F. S. Kelly, Jr., Louisiana vice chairman, Cities Distributing Co., Shreveport, La.

A. N. Horne

The program for the coming year of the Mid-Continent section and petroleum division of the A.S.M.E. includes work and research which will be of special interest to the petroleum industry including the preparation of a pipe line handbook, which will be a compilation of all data peculiar to pipe line construction, operation and management; a complete report on the progress of automatic pipe line pumping stations, including description and use of new equipment and the advantages over the old; and a report on viscosity tests on crude oils flowing through orifices for the determination of correct coefficients and correction factors at various temperatures and velocities to be conducted under the auspices of the recently organized fluid meters committee.

GRANT CONCESSION FOR NEW PLANT IN BRAZIL

WASHINGTON, D. C., July 27.—A concession has been granted to Otto Scott Estrella, a citizen of Venezuela, to construct a refinery for crude oil in the port of Rio Grande, State of Rio Grande do Sul, Brazil.

It is understood that mostly Venezuelan crude oil will be used by this refinery, the product to be gasoline, kerosene, lubricating and fuel oils. However, the first efforts will be for the production of gasoline and kerosene exclusively. The initial daily production will be only 5,000 bbls., but the plans contemplate running 15,000 bbls. daily. Capital is to be obtained by the sale of shares in the company and these are expected to be sold to Brazilian capitalists if possible.

The promoters state that their products will be sold at a minimum of 50 per cent reduction under the prevailing prices. Otto Scott Estrella, the promoter of this enterprise, has lived for some years in New York and Boston.—C.E.K.

CALIFORNIA OIL FIELD OPERATIONS FOR JUNE, 1931

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for June amounted to 15,641,436 bbls., an average of 521,381 bbls. per day. This is a decrease of 9,231 bbls. per day under May production.

Total stocks of crude and all products in Pacific Coast territory decreased during the month 2,295,986 bbls. The total stocks at the end of the month were 173,416,314 bbls. The total stock decrease for 1931, up to June 30, was 7,616,827 bbls.

Thirty-two wells were completed during the month with an initial daily production of 62,286 bbls., compared with 27 wells completed during May with an initial production of 44,915 bbls.

CRUDE PETROLEUM PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons)

	Bbls. per month	Daily average June, 1931	Daily average May, 1931	Daily average June, 1930
Group No. 1—				
Coalinga	258,587	8,620	8,472	9,370
Elk Hills	408,875	13,629	14,618	19,334
Fruitvale	68,460	2,281	2,271	2,676
Kern River	317,396	10,580	11,296	14,344
Kettleman Hills	1,750,652	58,355	58,349	14,320
Lost Hills-Belridge	295,494	9,850	6,154	2,374
McKittrick	56,870	1,896	1,995	3,882
Midway-Sunset	1,523,335	50,778	53,240	62,714
Mount Poso	253,704	8,457	7,914	13,215
Round Mountain	10,298	343	277	3,696
Wheeler Ridge	15,663	522	535	592
Group No. 2—				
Capitan	0	0	0	25
Elwood	872,444	29,081	34,910	43,690
Rincon	56,788	1,893	1,920	2,660
Santa Barbara	4,800	160	552	0
Santa Maria	95,130	3,171	3,004	3,296
Summerland	4,525	164	164	311
Ventura Avenue	1,243,366	41,446	43,508	48,288
Ventura-Newhall	112,690	3,758	2,770	4,810
Watsonville	1,875	62	62	63
Group No. 3—				
Coyote	299,916	9,997	10,005	10,327
Domingues	340,242	11,341	11,578	10,985
Fullerton (Brea Olinda)	291,857	9,729	10,008	12,220
Huntington Beach	616,554	20,562	21,533	28,499
Inglewood	426,207	14,207	16,124	17,212
Lawndale	13,928	464	301	277
Long Beach	2,398,652	79,956	86,985	93,069
Los Angeles-Salt Lake	39,108	1,304	1,358	1,503
Montebello	198,725	6,624	7,005	7,239
Newport	172	6	24	49
Playa Del Rey	800,469	26,682	29,082	4,263
Potrero	39,925	1,331	549	3,981
Richfield	205,774	6,859	6,870	8,951
Rosecrans	104,713	3,490	3,731	6,812
Santa Fe Springs	1,963,938	65,465	72,040	113,048
Seal Beach	336,412	11,217	13,831	20,401
Torrance	172,518	5,751	6,217	11,607
Whittier	40,503	1,350	1,330	1,429
Total June	15,641,436	521,381	530,612	600,693
Total May	16,448,960	530,612		
Decrease	807,524	9,231		

PACIFIC COAST TERRITORY PETROLEUM STOCKS

	June 30, 1931	May 31, 1931	June stock decreases	June 30, 1931
Heavy crude, heavier than 20° A.P.I., including all grades fuel	104,416,375	105,316,997	900,622	113,036,486
Refinable crude, 20° A.P.I. and lighter	42,521,954	43,453,961	932,007	41,863,482
Finished gasoline, engine distillate and natural gasoline	15,388,862	16,209,373	820,511	17,103,762
Naphtha distillate	3,036,807	2,823,505	*113,302	2,992,818
All other stocks	8,052,316	7,808,464	*243,352	9,345,804
Total all stocks	173,416,314	175,712,300	2,295,986	184,342,252

*Increase.

OIL FIELD DEVELOPMENT

	New rigs up	Active drilling	Completed	Daily initial output	Active producing	Abd. wells Drillers	Abd. wells Producers
Group No. 1—							
Buttonwillow gas field	0	1	0	0	0	0	0
Coalinga	0	1	0	0	672	0	0
Elk Hills	0	0	0	0	210	0	0
Fruitvale	1	0	0	0	17	0	0
Kern River	0	0	0	0	924	0	0
Kettleman Hills	0	12	7	47,403	18	0	0
Lost Hills-Belridge	0	3	1	7,185	195	0	0
McKittrick	0	1	0	0	126	0	1
Midway-Sunset	0	0	2	450	1,804	0	1
Mount Poso	1	0	2	400	65	0	0
Round Mountain	0	1	1	225	4	0	0
Wheeler Ridge	0	0	0	0	34	0	0
Group No. 2—							
Capitan	0	2	0	0	0	0	0
Elwood	0	2	0	0	35	0	0
Rincon	0	3	0	0	32	0	1
Santa Barbara	1	1	2	325	3	0	0
Santa Maria	0	1	2	1,250	176	1	0
Summerland	0	0	0	0	97	0	0
Ventura Avenue	0	8	2	1,366	148	0	0
Ventura-Newhall	0	4	0	0	407	0	0
Watsonville	0	0	0	0	6	0	0
Group No. 3—							
Coyote	0	5	1	75	167	0	0
Domingues	0	0	0	0	56	1	0
Fullerton	0	2	0	0	349	0	0
Huntington Beach	1	0	0	0	356	0	0
Inglewood	0	0	1	345	209	0	0
Lawndale	1	0	0	0	7	0	0
Long Beach	0	15	1	495	883	2	0
Los Angeles-Salt Lake	0	0	0	0	242	0	0
Montebello	0	0	0	0	173	0	0
Newport	1	0	1	30	5	0	0
Playa Del Rey	0	4	3	1,071	170	0	0
Potrero	0	0	2	1,436	15	0	0
Richfield	0	0	0	0	151	0	1
Rosecrans	0	0	0	0	80	0	1
Santa Fe Springs	1	1	1	25	464	0	0
Seal Beach	0	2	0	0	104	0	0
Torrance	0	0	3	205	375	0	1
Whittier	0	0	0	0	172	0	1
Miscellaneous drilling	4	111	0	0	0	10	0
Total June	11	185	32	62,286	8,981	14	7
Total May	16	240	27	44,915	8,995	13	16
Decrease	5	55	*5	*17,371	14	*1	9
Average for year 1930	80	434	63	48,710	9,632	21	27
Average for year 1929	109	610	76	100,625	10,550	26	18
Average for year 1928	107	520	59	56,802	10,833	15	25
Average for year 1927	97	404	75	39,992	11,276	23	21
Average for year 1926	95	422	76	32,635	11,288	24	17

*Increase.

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Read by Oil Men Everywhere

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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

EQUIPMENT WANTED

AM IN THE MARKET for standard steel 84 foot drilling rig and heavy duty rotary steel drilling rig. Also both standard and rotary drilling tools. Also casing in all sizes from 20" to 5½". Also steel tanks of various sizes. All equipment must be first class and very cheap. Address Box 467, Red Cloud, Nebraska.

Am in the market for small diamond core-drill and equipment. Must be in good condition and priced right. Write Box E-531, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—EQUIPMENT

INGERSOLL-RAND COMPRESSORS
With vertical intercoolers, good as new. (3) 10x4½x10 belt driven XOB, starting 1,000 lbs., working 750 lbs., cost new $2,141.00. (1) 11x5x10, XOB start. 750 lbs., working 400 lbs., cost $2,240.00. (1) 13x7x12, 300 lbs., 200 lbs., cost $2,885.00. Reasonably priced for quick sales.
MONTAGUE OIL CO.,
ZENORIA, LOUISIANA.

FOR SALE for a low price. A gasoline powered Sullivan Diamond Core Drill. Write Box E-492, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—Slightly used Ingersoll-Rand steam two stage, 250-pound air compressor. Piston displacement. 312 cubic feet per minute at 200 r.p.m. Complete with intercooler and receiver. Write Box E-456, The Oil and Gas Journal, Tulsa, Okla.

200 Amp. Lincoln Arc Welder, 220/3/60. Practically new. Price $425.00. 100 Amp. Federal Butt Welder; 220 V. 60 cy. Complete. Excellent condition. $500.00. 12"x14" Chicago Pneumatic Air Compressor. $350.00. 46"x18' Niles Lathe, Quick change; $1,250.00. Also, large stock of lathes, shapers, mailing machines, pipe machines, bolt threaders; etc. Send for our list. Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West Second St., Cincinnati, O.

55 H. P. SEMI-DIESEL crude oil engine with two Dodge clutches and jack shaft. Good condition. Both economical on fuel. Should be inspected to see value. Price will suit purchasers.
E. W. Steward,
216 Benjamin Ave., S. E.,
Grand Rapids, Mich.

HALL-SCOTT 100 H. P. heavy duty gasoline motors water cooled; government surplus. Like new. $100. S. J. Burns, 339 S. Jefferson St., Dayton, Ohio.

For Sale—50,000' 4" used line pipe 11c, 40,000' 2" used line pipe 7c, 50,000' 6" used line pipe 25c, 20,000' 8" plain end pipe 30c. Texas Supply Co., Houston, Texas.

FOR SALE—EQUIPMENT

ONE MODEL 3168 Buckeye ditching machine in A-1 condition together with plenty of spare parts and one complete blacksmith outfit. Address F. H. Carson, 222 W. Dewey St., San Antonio, Tex.

FOR SALE
Complete Electric Plant 225 H. P. Semi-Diesel crude oil burning engine. G. E. equipment. Three-phase, 60-cycle, 440 volts A. C. Can be inspected in operation. Good running condition.
E. W. Steward,
216 Benjamin Ave., S. E.,
Grand Rapids, Mich.

FOR SALE—4,000 feet 6-inch rotary seamless used eight-thread line pipe. Eight hundred feet 15½-inch casing. Henry Bennett, Augusta, Kansas.

FOR FIFTEEN HUNDRED dollars I will sell a complete rotary drilling rig. It is in first class condition. Located East Texas. Write Box E-535, The Oil and Gas Journal, Tulsa, Okla.

NEW WIRE ROPE FOR SALE
1¼, 1⅛, 1 and ⅞ Improved Plow Steel, 850, 1,050, 1,150 and 1,250-ft. lengths; 5,000 ft. ⅞ Improved Plow Steel, at 20c per ft.; 10 reels Mild Plow Steel, 1 and ⅞, 5,000, 4,500, 4,000, 3,500 and 3,000-ft. lengths; all 6x19, hemp and wire centers; 50,000 ft. ¾, ⅝ and ½ Sand Lines, 6x7, 2,000 to 5,500-ft. lengths; low prices; immediate shipment. Address or wire Box E-525, The Oil and Gas Journal, Tulsa, Okla.

EXTRA HEAVY 122' steel derrick, standard equipment, largest band wheel made, steel bull wheel, chain driven sand reel, best money can buy, drilled one 6,000' well; also 2,000' 11¾ extra heavy Class D seamless casing; also 2,000' 9" extra tensile and collapse strength casing; also Hinderliter casing clamps same size; also Braden steel engine and belt house for rig. Now located north of Electra, Wichita County, Texas. H. B. Dudley, 924 Hamilton Bldg., Wichita Falls, Texas.

BUSINESS OPPORTUNITIES

BUSINESS CORPORATIONS ORGANIZED. Delaware laws. Many advantages. Low cost. Write for Free forms. Dept. 16, Corporation Fiscal Co., Wilmington, Del.

FREE MAP East Texas oil area with drilling data. W. J. Dobbs, 915 Tower Petroleum Building, Dallas, Texas.

BUSINESS OPPORTUNITIES

HAVE PERFECTED VERY SUCCESSFUL system for locating oil and gas structures. Charges reasonable. Write Box E-520, The Oil and Gas Journal, Tulsa, Okla.

EAST TEXAS CRUDE OIL
Accessible to pipe lines and loading racks, offered at prevailing market prices for immediate or future delivery. Inquiries from refiners, marketers and speculators invited. Steel storage and insurance provided at current rates.
J. G. REAVES,
222 North Broadway,
TYLER, TEXAS

OIL located before drilling. Geophysical method. Topgodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses, 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

EAST TEXAS DEFERRED OIL PAYMENTS
Under big producing wells, Gregg and Rusk Counties, will sell at liberal discount. J. O. Garlington, Route 2, Longview, Texas.

FOR SALE: Two hundred million tons of Gypsum (estimated) within two miles of railroad. Practically no overburden as formation lies in edge of marsh. Deposit covers practically all of 10,000 acre tract. On one forty deposit will average solid for depth of 10 feet. Communicate with owner. P. O. Box 278, Madison, Florida.

We buy or sell gold mines and claims only. All stages of development. Promotion deals our specialty. Write us your wants. Address Clemans & Co., 17 East Dale St., Colorado Springs, Colo.

SELL YOUR PROPERTY FOR CASH if priced right. Nationwide connections. Exchanges anywhere. Send particulars. Knight, 2156 West Slauson, Los Angeles, Calif.

FOR SALE: About 5,000 acres of producing gas territory in Western New York. Three commercial gas wells brought in this year; no dry holes. Splendid proposition for party with capital. Address 204 Morgan Bldg., Buffalo, N. Y.

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The OIL and GAS JOURNAL
TULSA OKLAHOMA
CLASSIFIED DEPARTMENT

BUSINESS OPPORTUNITIES

FOR SALE—TEXAS COMPANY BULK AGENCY. Good town on intersection of two national highways. Box E-503, The Oil and Gas Journal, Tulsa, Okla.

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FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

IF YOU WANT your securities or proposition intelligently submitted to underwriting and security selling houses in New York, write W. W. Hines, Room 803, 150 Broadway, New York City.

CAPITAL: An exp. dependable broker will aid in financing projects of merit. Amster Leonard, East Orange, N. J.

CORPORATE ORGANIZING AND FINANCING
BROOKWORTH,
110 East 42nd St., New York

JOHN MORRIS, 3608 WARREN ST. PHILADELPHIA, PA., invites full facts first letter from capable parties planning negotiation of reasonable capital support for undertakings distinctly of higher order. Use registered mail, safeguard data.

SOUND PROPOSITIONS seeking capital for development or expansion send details. S. I. C., 82 Wall Street, New York City, N. Y.

JAMES E. MILLER CO. will co-operate with responsible firms or parties seeking aid in financing projects of higher order. Suite 200, New Brady Hotel, Tulsa, Okla.

Financial Assistance arranged for new and operating companies. Bond issues prepared, issued and handled. Write fully. Reuter Co., Box 35, Wilmette, Chicago, Ill.

MY MOVING Pictures of the East Texas and Oklahoma City Fields are being used with great success in U. S. and Canada, selling oil interests. Duffey Mapes, 2223 S. Agnew Ave., Oklahoma City, Okla.

FOR SALE—MAPS

SOUTHEAST NEW MEXICO
MAPS
Send for list.
THE M. H. HUNTER, CO.
Roswell, N. Mex.

M-A-P-S

We have the only complete line of general area, lease ownership and oil development maps in East Texas.

Prices on Request

ZINGERY OIL MAP CO.
Fair Bldg. Fort Worth, Tex

KANSAS OIL FIELD MAPS
The Kansas Blue Print Co.
Wichita, Kans.

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HOTEL CUSHING
Cushing, Oklahoma
"Where Oil Men Meet"
Modern, Fireproof, Coffee Shop.

NEW BRADY HOTEL, TULSA, OKLA.
Tom Wilson, Mgr.
Fireproof, remodeled, new management. Free parking. Prompt, courteous service. Rates $1.00 up. Private baths $1.50.

HOTEL HAWLEY
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Modern fire-proof Hotel. Rooms $1.50 up.

BEAUCLAIR HOTEL
Okmulgee, Okla.
"Oil Men's Headquarters"
All Rooms with Bath $2, $2.50, $3.

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CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

CLASSIFIED WANTS

Create and Build Sales

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OIL FIELD TRUCKS REPAIRED
SIBERLING TIRES
The Heaston-Carter Motor Service Co.
McPherson, Kansas.

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PATENTS—Write for our book, "How to Get Your Patent," and evidence of invention. Send model or sketch of invention for our examination and instructions free. Randolph & Co., Dept. 472 Washington, D. C.

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form.
Evidence of Conception
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER, ALLWINE & ROMMEL
240 Ouray Bldg., Washington, D. C.

LEASES—PRODUCTION

OIL LEASES AND ROYALTIES
Bought and Sold.
In the Hobbs Pool
Lea County, N. Mex.
A. L. Gurley, Clovis, N. Mex.
P. O. Box 211 Phone 392.

OIL AND GAS LEASE of eighty acres for sale at $5.00 an acre and 50-50 royalty. Situated in Chautauqua County, Kansas. All of North one-half (N½) of the Northeast one-fourth (NE¼), Section 20, Township 32, Range 13E. Write Box E-528, The Oil and Gas Journal, Tulsa, Okla.

STRUCTURAL LEASES CHEAP
Having spent many years with a major producing company and having access to much geological data, I have acquired many good oil and gas lease tracts which can be had at this time. Well worth the money. Communicate with me. Write Box E-527, The Oil and Gas Journal, Tulsa, Okla.

NEW MEXICO STATE OIL LEASES. New De Baca County. $2.50 per acre. C. I. Skoyen, 235 East Spruce Street, Inglewood, Calif.

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AM SPECIALIZING in Texas Panhandle gas production royalties and leases. Business is good, the reason is am making prices in line with conditions and handling a line we have a home market for, and the best investments in U. S. today. Thirty years in business here. Write E. B. Reeves, Alanreed, Gray County, Texas.

E. TEXAS PRODUCING ROYALTY
Under major company 65-acre lease. Three big wells. All locations good.
WILL SELL IN ONE-ACRE LOTS
John L. Dickson, Box 1037, Tulsa, Okla.

PRODUCTION, and nonproducing gas royalties, Stevens County, and Panhandle fields, Kansas, Oklahoma, and Texas royalties. Special service for brokers. List and maps. James R. Haynes, Grantville, Kansas.

$1,000 indenture bearing 6% for $100. Quick action required. No oil deal. T. E. Baldwin, 3009 Avenue E., Wichita Falls, Texas.

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Let Valuation Engineer buy royalties for you. Prices now lowest in history. Twelve years experience appraising oil properties. My plan assures profitable investments. Write R. B. ALLPORT, Hunt Bldg., Tulsa, Okla.

BEDROCK ROYALTY PRICES ahead of drilling on major company blocks. $6 per square mile. Perpetual deeds and title warranty. Clearly stated and understandable interests. See maps and bulletins. R. R. Fisk, Box 1214-B, Wichita Falls, Texas.

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ROYALTIES—PRODUCTION

MID-CONTINENT OIL ROYALTIES at reasonable prices and with assurance of safety. Past record "Chicago dealer since 1920" indicates quick return of principal and handsome profit. Write me. J. A. Wolf, 208 South LaSalle St., Chicago, Ill.

ROYALTY DEALERS AND INVESTORS: Oil and gas royalties at 10% their value. Suite 8, Union Bldg. Prescott, Ariz.

$12.50 BUYS deed part oil, 2 Oil Royalties City Pool. Ed Milam, Dept. 5, Oklahoma City, Okla.

WILL PAY CASH for producing Royalties anywhere. Send full information. Merrick C. Ham, Pres., Lamont & Co., Ltd., 1107-8 Bartlett Bldg., Los Angeles, Calif.

James B. McAnally

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A real royalty service for dealers. Now specializing in Oklahoma City Pool. Subscribing to all dependable sources of information—with buyers actually on the ground—taking our responsibilities seriously.

MID-CONTINENT OIL ROYALTIES
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Suite 523
105 North Clark St.,
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THE ROYALTY NEWS
The monthly magazine edited specifically and exclusively for the welfare of those interested in Oil and Gas Royalties. Current number contains many valuable features including: "What an Investor Should Know to Buy Royalties Wisely," "Uniform Accounting for Royalty Companies Urged," "California Royalty Practices Explained," "Disfranchisement of Stockholders," Four pages Oklahoma City Leases Statistics; East Texas Map, and cross-section showing 200 miles of formations from Waco, Texas, to Shreveport, Louisiana; Royalty Transfers; Royalty Stocks, and other essential data. Profit most from your interest in Royalties. Subscribe to THE ROYALTY NEWS. Remit $2.00 now. Your subscription will start with current number. Write 618 World Building, Tulsa, Okla.

ROYALTIES—PRODUCTION

KILGORE—ROYALTIES, LEASES, and town property for sale. Let us handle your Kilgore interests. Friedman & Davis, Box 945, Kilgore, Texas.

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PRODUCING ROYALTIES
In Mid-Continent Area.
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OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

WANTED

WANTED—Used large shell still, heat exchangers, condenser boxes and coils, small steam oil pumps, gasoline meter, valves. Give price, condition, sizes. P. O. Box 165, Longview, Texas.

TYPEWRITER RIBBONS

$1 TYPEWRITER RIBBONS SPECIAL at 75 cents each. Fay Young Typewriter Co., Tulsa, Okla. Phone 4-5973.

POSITIONS WANTED

FIFTEEN YEARS' experience on tools, both rotary and standard, five years' experience as field superintendent for major company. Can furnish sufficient references. Available immediately. Write Box E-534, The Oil and Gas Journal, Tulsa, Okla.

College Graduate, majoring in chemistry and mathematics desires employment in refinery or production department. Write Box 715, Garber, Okla.

CHEMICAL Engineer, S. M. degree (M.I.T.), 9 years' petroleum refining experience as head of inspection department in large and complete plant of a major oil company. Write Box E-532, The Oil and Gas Journal, Tulsa, Okla.

MECHANICAL ENGINEER — 4½ years' experience with standard and rotary drilling tools; casinghead, etc. Estimated costs. Excellent references. Available immediately. Write Box E-526, The Oil and Gas Journal, Tulsa, Okla.

Purchasing right of way and claim adjuster. References. Anywhere in Mid-Continent Field. Write Box E-533, The Oil and Gas Journal, Tulsa, Okla.

MECHANICAL ENGINEER, graduate, eight years experience of oil well equipment in shop, field and office desires permanent position with reliable concern, foreign or domestic. Write Box E-537, The Oil and Gas Journal, Tulsa, Okla.

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One point borders and ten point capitals are allowed, larger type not accepted.

Changes in copy must be in our office 10 days in advance of publication date.

Mail your advertisement to the Largest Classified Section in the Oil Industry.

THE OIL AND GAS JOURNAL
TULSA OKLAHOMA

POSITIONS WANTED

MANAGER AND SUPERINTENDENT
Graduate engineer, 12 years oil field experience with major and independent companies, in geological, scouting, land and leasing, drilling and production departments. Thoroughly experienced oil field manager with exceptional references. Will accept position in any of above departments or in charge of operations or developments. Write Box E-522, The Oil and Gas Journal, Tulsa, Okla.

YOUNG MAN, Diesel engineer, installation and upkeep, college work in M. E. Marine license, member A.S.M.E., 10 years' pipe line and transportation experience, consider change. Salary reasonable. Go anywhere. References. Write Box E-530, The Oil and Gas Journal, Tulsa, Okla.

PETROLEUM CHEMIST AND ENGINEER, 3½ years, topping, cracking, treating, lub; married, 28; inventive, industrious, co-operative; East Texas or anywhere; Technical Supervisor capacity, 2 or more small stable refineries. Write Box E-536, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

I NEED A SALESMAN to sell Oklahoma oil royalties and land. My plan would place you in business for yourself. Write Box E-493, The Oil and Gas

SALESMEN WANTED: Lea Co. N. M. leases and royalties, prices right, terms easy. Write Fred B. Manley, Roswell, N. Mex.

If your particular type of work is not advertised here, why not advertise your services, telling your qualifications and the type of work you are best fitted for?

Designing Engineer wanted by engineering and contracting firm, capable of designing and estimating atmospheric and vacuum pipe still distillation units, lubricating plants, treating plants, and general refinery construction. Write fully giving training, experience, former employers and salary expected first letter. Location middle west. Write Box E-524, The Oil and Gas Journal, Tulsa, Okla.

NEED GOOD LEASE broker in every city to help handle large quantity active cheap leases Panola-Shelby areas East Texas. W. J. Dobbs, 915 Tower Petroleum Bldg., Dallas.

USED EQUIPMENT

—is doing a large part of the work in East Texas — and is being sold through the Classified Columns of

The OIL and GAS JOURNAL

Why Not Use This Medium to Dispose of Yours?

CLASSIFIED DEPARTMENT

Chicago Markets in a Healthier State

Disturbing Factors Still to Be Disposed of Cause Distributor and Jobber as Well as Refiner, to Proceed Cautiously

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, July 27.—Refined products markets in the Chicago district at the close of business Saturday were generally agreed to be in a healthier condition than they have been in months, from a psychological as well as a material standpoint. The fact that a relapse may be brought on by any of several disturbing factors which are still to be disposed of is causing the distributor and jobber as well as the refiner to "play close to his chest."

Object lessons on what policies to avoid have been presented by certain refiners who looked for a continuation of the abnormally low markets and sold accordingly, and by those jobbers who kicked their tanks every morning before buying. Several refiners are known to be in serious difficulties because they guessed the markets wrong, and ultra-conservative buyers have discovered the myth of huge quantities of "distress material" piling up demurrage in the district.

Although several of the major refiners have discontinued buying gasoline, a larger number have permitted their stocks to fall considerably below the line of safety and are now buying heavily for immediate delivery. One such refiner, it is reported on good authority, sought to buy 200 cars of 60-62, 417 endpoint material at 2¾ cents Friday and could not find a seller at this price. Refiner inquiries reported in the district Saturday were for a total of 1,100 cars for delivery over a week.

East Texas Refiners Sold Up

At the Chicago offices of Burford Oil Co., which operates refineries in the East Texas area, it was reported that the output of the companies' plants was sold out for several weeks ahead, and that the spot market postings on the U. S. Motor grade have been moved up to 3 cents at the refinery. This price is not surprising from the standpoint of the quality of the gasoline produced from the East Texas crude oil.

Checking over reports that "considerable distress gasoline is still available in the Chicago district," an intensive search for two days brought to light two cars of colored third grade, two cars of rejected material, and five cars of scattered orders that were unduly delayed. The five cars were on sidings at out-of-the-way points. One does not go so far as to say that there is no distress material in the district, but it seems undeniable that this gasoline is no longer a factor in the market.

Several of the refiners who are not yet prepared to re-enter the open markets Saturday moved up their quotations on U. S. Motor specifications gasoline to 3¼ and 3½ cents. The draught of nearly 1,000,000 bbls. last week on the gasoline stocks, as indicated by the American Petroleum Institute's figures, added considerably to the growing optimism here.

While the spot market business was just beginning to show signs of better movement at the close of last week, though still hesitant and held to immediate instructions, buyers were drawing heavily on their contracts, and several refiners reported that from the standpoint of volume this business exceeds that of the corresponding period in any previous year. This improvement extends to finished lubricating oils, bright stocks, neutrals and automobile greases.

Tank Car Markets Stronger

The gasoline tank car markets, reflecting their own strength as well as the improved crude oil outlook, Saturday were thought to be tending strongly upward to at least a 3-cent low for next week. One market student, who has on a number of occasions called the turn correctly, bases his opinions almost exclusively on the various factors operating in the crude oil situation. This oil man does not look for a gradual clearing up of the refined products markets. The improvement, he says, will be considerable and will appear almost overnight. "A large number of people who suddenly found themselves in the oil business," this man explained, "have had to learn that crude oil production and crude oil prices vary in indirect proportion. Probably the saddest disillusionment which is breaking upon these novices of the industry is the fact that they have their own activities to blame for their predicament and not the fondly imagined machinations of the major interests."

However this may be, the fact is that at the close of last week no one was found to be in a position to guarantee delivery of any sizable quantity of U. S. Motor gasoline at 2¾ cents which was the low at the beginning of the week. The ruling price has moved to 2⅞ cents to 3⅛ cents. According to the principal sources jobbers wanting material for prompt delivery had to pay 3 cents, a price which represents most of the spot business because of the current day-to-day buying policy.

Seek to Increase Illinois Crude Production

Of local interest to marketers and refiners are the observations recently made by the Illinois Chamber of Commerce in connection with the bill passed by the state legislature and signed by Governor Emmerson in the last session, calling for a thorough study to be made of the raw mineral resources of the State. The chamber views unfavorably a report which shows that oil production in the State for the first five months of 1931 totaled 1,917,000 bbls., whereas the production in the corresponding period of 1930 was 2,535,000 bbls.

The rising tank car gasoline markets have apparently stiffened tank wagon and service station prices, and it is understood that the prospects are dark for trackage station operators. In fact, the operators who dipped down to a 5.9 cents plus 3-cent tax price at the trackage station earlier in the week, have been forced to move up their postings to 7 cents plus tax in nearly every case. Rumors to the effect that one of the major companies is planning to increase the tank wagon and service station prices on the third-grade gasoline in Chicago were denied Saturday.

At the close of business last week tank car gasoline prices were: 58-60, 437 endpoint, 2⅞ to 3⅛ cents; 60-62, 400 endpoint, 3 to 3¼ cents; 64-66, 375 endpoint, 3⅜ to 3½ cents; 64-66, 437 endpoint blend, 2½ to 2¾ cents; 68-70, 360 endpoint, 3 ⅛to 3¾ cents.

Natural Gasoline and Naphtha

Although the movement of natural gasoline had slowed down slightly toward the end of the week, the demand was sufficient to hold prices to the highest levels reached by this product for some time. The situation in the gasoline tank car markets makes the use of blended gasoline the best solution of a distressing situation in which the cut-price operator is finding himself. It is generally felt, however, that there is little prospect for narrowing the gap between natural gasoline and U. S. Motor gasoline markets. Due to seasonal considerations stress is laid upon vapor tension and in the Grade AA material, the propane-free natural gasoline which sells for a low of 2⅜ cents, represents the principal movement. The 50-52, 450 endpoint naphtha used in blending showed an eighth of a cent improvement. Natural gasoline markets at the close of last week were: Grade A, 72-79.9, 375 endpoint and 90 per cent recovery, 2⅜ to 2½ cents; Grade AA, 80-87.9, 375 endpoint and 90 per cent recovery, 2¼ to 2⅜ cents; Grade BB, 84-92, 375 endpoint and 85 per cent recovery, 2 to 2¼ cents.

One of the larger shareholders in the Great Lakes gasoline pipe line last week began shipping 15 cars of gasoline daily from the Chicago terminal. This refiner reports that 25 per cent of the material he ships from the Minneapolis and Chicago terminals is third-grade gasoline to meet price competition.

Tank Wagon and Service Station Markets

At Detroit last week all of the major companies cut the price of their regular gasoline to 11.3 cents, including tax, or 9 gallons for $1, and the price of the third-grade gasoline, following Stanolind Blue, went down to 5.3 cents plus tax, after the leading trackage station operator had met a reduction to 5.6 cents by posting 5.4 cents. It is estimated that at the current prices retailers of third-grade gasoline in Detroit are engaged in a fight to a finish and losing three quarters of a cent, at least, on every gallon of gasoline sold. It is indicated that the duration of the price war at Detroit depends upon how much money the interested parties plan to lose. The Detroit situation is believed in Chicago to be a forerunner of developments which may be expected at any time at other points in the territory such as St. Louis, Minneapolis, Kansas City, Wichita, St. Joseph and numerous lesser points such as Elgin, Urbana, Gary and Bay City.

According to reliable sources of information, the cut to 7 cents plus tax on the third grade of gasoline in Chicago sent the third-grade gallonage upward sharply at the cost of the regular grade. Ethyl sales, however, have also shown a steady increase. A movement among the refiners is seen toward the improvement of their regular grade of gasoline. One major interest which is buying considerable quantities of material is restricting purchases to 400 endpoint material or better. Another is shipping 60-62, 400 endpoint gasoline to Milwaukee where this material is fractionated to produce a 62-64, 370 endpoint gasoline which the company sells as its regular grade.

Octane Numbers Better Understood

There has been no let-up in the demand for better octane number gasolines, and it is a significant point that jobbers have become more conservative in speaking about the antiknock quality of motor fuel and now speak more frequently of octane numbers below 70, rather than of octane numbers of 80 and 100 as was the case not so long ago. Most of the gasoline of exceptional antiknock quality, however, continues to move into Ohio and Kentucky rather than into the Chicago district. One major company in Kentucky is reported to be buying large quantities of East Texas straightrun gasoline of 58 to 60 octane number. Trackage stations in Chicago are announcing 60-62 gravity, 400 to 417 endpoint gasoline of 60 octane number or slightly better at 8 cents plus tax.

In general, the gasoline markets in the Chicago district are indicating that the expected increases in runs to stills have not been as large as it was feared they might be with the result that the relationship between supply and demand is highly favorable.

A statistician of Pure Oil Co. has drawn up a table which should be of interest to service station operators who are contemplating price cuts and expecting increased gallonage to make up the difference. Figuring on a sale of 500 gallons daily on a base price of 20 cents a gallon, this statistician shows that a cut of 1 cent calls for the sale of 63 gallons more; a 1.5-cent cut requires an additional sale of 175 gallons; a 2-cent cut must be made up by the sale of 250 extra gallons; a 2.5-cent cut requires a sale of 375 extra gallons, and a 3-cent cut requires a sale of 563 more gallons a day.

Kerosene

The kerosene markets have been exceedingly dull and unchanged in price for some time, but at the close of last week there were indications that interest was beginning to turn to these products and the prices which have been in a nebulous condition for months assumed a more convincing character at 1⅞ to 2⅛ cents for the 41-43 water white material, and 2 to 2¼ cents for the 42-44 water white kerosene. Several refiners report some improvement in the movement of kerosene, but the real betterment is not expected until gasoline has moved out of competitive range. Standard Oil Co. of Indiana continues to post a tank wagon price of 9 cents, although several jobbers are reported to be offering tank wagon prices as low as 6 cents.

One of the outstanding features of the markets in the Chicago district has been the steadily increasing volume of business in finished lubricating oils, bright stocks and neutrals. Pure Pennsylvania material is showing a large volume and it is reported that Pennsylvania refiners have been forced to increase their output of bright stocks and neutrals to realize a profit on the higher priced crude oil. One Pennsylvania refiner is now engaged in doubling the capacity of his plant by installing the most modern equipment to profit from the advantages offered by the $1.35 crude oil.

"Pure Pennsylvania" lubricating oils are offered at prices ranging from 13.4 cents to 16 cents a quart in tins of 5 gallons at almost every department store. These usually carry the retailer's brand name, although there are branded oils of major refiners offered at these stores at similar prices. If the practice of selling well-known brands at these low prices continues to grow as it has in the past two months, it appears to be inevitable that the customers will choose to drive up to the dry goods store rather than pay 30 cents or more a quart for the same lubricating oil at the service station.

In the Mid-Continent bright stocks and neutrals a much better tone was seen at the close of the week with 200 neutral at 9 cents, 300 neutrals at 12.25 cents, and D color bright stock at 12.5 cents.

Fuel Oils and Gas Oils

Although the fuel oil and gas oil markets continued dull last week, an improved tone appeared to be coming into these markets Saturday as the first hints of preparations for the consuming season were heard. More than 45 tank wagon distributors in the metropolitan Chicago area formed the Burning Oil Institute of Chicago for the purpose of co-operative activity in promoting the sale of oil for heating purposes. This group, according to John M. Carson, who has been given charge of the organization affairs, has adopted a code of fair trade practices. At the organization meeting Friday it

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Export and Eastern Markets Improved

Price Mark-Ups by Gulf Sellers Put Trade on Firm Basis for the First Time in Months. Sentiment in East Better

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, July 27.—A definite firming-up in the position of the Gulf export market featured the week's trading, and centered attention on the stronger position of the Gulf and Mid-Continent markets. The price mark-ups by Gulf sellers establish the market on a firm footing for the first time in several months, and have aroused widespread interest among export operators. Gulf sellers are holding firm at their increased price levels, and intimate that further price advances are in sight.

Eastern markets continued to mark time, but sentiment was definitely improved, particularly with respect to the gasoline market, and it is believed that prices on all of the major products have scraped bottom for the current move and that a definite upturn will be discernible in the near future. In view of the chaotic position from which the eastern refined products markets are just emerging, it is believed that leading interests will make every effort to hold prices down as long as possible, but it is likewise apparent that continuation of curtailment of production on the part of independent crude producers may force the hand of the refining branch of the industry much sooner than is now looked for, and that the upswing in refined products prices may be just around the corner.

Gasoline gallonage has been exceptionally heavy throughout the East during the past week and business is entirely satisfactory from the standpoint of volume, if leaving much to be desired from the price viewpoint.

Disclosure of the closing of a contract between Richfield Oil Corp. of New York and Arkansas Natural Gas Co. for the supplying of the bulk of the New York company's products requirements by Arkansas Natural Gas, has aroused widespread interest in trade circles here and is taken as an indication of a definite assumption of control of Richfield's operations by Cities Service. Sale and delivery of gasoline and other products by Arkansas Natural Gas will be made upon such terms and conditions as may be approved by the receivers of the parent California Richfield company, which will be based on adjusted netback month by month. For the first month, the price for gasoline is set at 4 to 4⅝ cents per gallon, depending on grade. Under the terms of the contract, Arkansas Natural Gas supplies 75 per cent of the New York Richfield's requirements, with Richfield of California to supply a maximum of 25 per cent and a minimum of 25 per cent. Both Arkansas Natural Gas and Richfield of California will deliver to the New York Richfield company's bulk terminals at Baltimore, Providence, and in the New York Harbor district.

Refinery Gasoline

Betterment in the position of the crude oil market, from the standpoint of both production and prices, coupled with the firming up in the position of the gasoline market in Group 3 territory and the Gulf, has created a definitely bullish feeling in the eastern refinery market, and has strengthened the belief that the market is now at rock bottom.

Posted prices for U. S. Motor gasoline in the tank car market have ranged 5⅛ to 6 cents per gallon during the week, and although occasional sales have been made at 5 cents and under, the average going price has amounted to at least the inside posted quotation, it is said. Gallonage has been well maintained, and the usual seasonal gain has continued unchecked.

Gasoline stocks held by East Coast refiners as of July 18 wer off to 6,394,000 bbls., as compared with 6,764,000 bbls. at the end of the previous week, and with refineries in this district still operating on a curtailed basis, it is expected that further inroads into reserve stocks will be made during the balance of the summer.

The estimate of the A.P.I. committee on refinery statistics and economics, predicting an increase of 3.7 per cent in demand for refinery gasoline during the second half of 1931 over the corresponding period last year has likewise contributed a firmer feeling to the situation in the East.

Principal factors in the East are of the belief that distressed stocks of gasoline which have been in the hands of weak holders are now pretty well liquidated, and predict that the rest of the summer season will witness a pronounced lightening of sales pressure in many divisions of the market, with consequent betterment in the netback on gasoline sales.

"Mopping Up" to Take About 30 Days

General sentiment appears to be that the "mopping up" process, during which period odd lots of distressed gasoline will still have to be absorbed, will occupy at the most 30 days' additional time, and that the market will be on a firm footing by mid-August or by the first of September, by which time it is believed that control of the market will be back in the hands of the stronger interests.

If present plans are adhered to, gasoline prices will be kept at a low level until the market is firmly established, after which a slow and gradual strengthening in the price basis will be effected. In previous years, the industry has repeatedly made the mistake of attempting to force the situation on a market upturn, which has inevitably led to a prolonging of general recovery and a continuance of wasteful and destructive price cutting competition.

Demoralization in refinery gasoline markets has reacted seriously against the earnings of the industry as a whole thus far in 1931 and while the trade is not looking for any sensational recovery in earnings during the closing four months of the year, it is felt that operation can be put on a more profitable basis and the groundwork laid for a restoration of normal conditions during the coming year.

Tank Wagon Gasoline

With the refinery market showing definite indications of stabilization, marketing departments are now turning their attention to the tank wagon and service station situation, which is still in bad shape. No general revisions in tank wagon prices were made in this territory during the week, and the markets are still disturbed by price cuts to meet local competition in various areas.

Opinions as to the immediate trend in the tank wagon market vary. In some quarters it is felt that tank wagon prices will be lowered by 1 cent per gallon in this territory, to lay the groundwork for a more stabilized market later on in the year. Majority sentiment, however, appears to be that present prices will be continued, and various local "weak spots" brought into line with the general market as the firmer refinery market makes itself apparent in lessened price cutting by independent marketers.

California gasoline, which has been firmly established as a major factor in eastern tank wagon markets, will lose much of its volume as a result of the action of Richfield of New York, principal marketer of straight California motor fuel, in diverting the bulk of its business from California to an Arkansas refining interest. The results of this transition will be watched with close interest by competitive marketing interests.

Gallonage in tank wagon markets has been exceptionally favorable thus far in the summer season, and present indications are that aggregate gallonage for the year in East Coast territory will come close to the most optimistic hopes held by many marketers early in the year.

Kerosene

Stocks of kerosene at East Coast refinery terminals are fairly large, and the market continues in easy position. The posted price for 41-43 water white continues unchanged at 4¾ cents, and refiners are not attempting to force sales at the expense of prices, realizing that there is but so much buying in sight at this time of the year, and that lower prices would not stimulate consumption. An occasional transaction in the tank car market is reported under the 4¾ cents level, but sellers, on the average, are holding firm at that price.

The tank wagon kerosene situation remained unaltered, with volume of sales showing seasonal contraction.

Fuel Oil

Bunker "C" holds unchanged at 80 cents per barrel, bulk, f.o.b. refinery terminals, the lowest price in the history of the eastern oil industry. Bunkering demand from steamship companies is easing off, as more steamers are withdrawn from service, and spot business is likewise quiet. Rumania is now furnishing the chief opposition to American sellers at European ports, offering heavy fuel oil at prices showing but a 5 cents per barrel netback to Rumania refineries.

While bunker prices hold at 80 cents, tehre is still some shading on shore business, and the posted price is being cut by 2½ to 5 cents per barrel on competitive business in some instances. Industrial demand for heavy fuel is rather light at the moment.

Gas Oil

Spot gas oil, 28 plus recycled, is holding unchanged at 4 cents per gallon, bulk, at refineries, with routine trading reported. Utility companies are drawing stocks in fair volume in the seaboard area, but at interior points the natural product is threatening to entirely replace manufactured gas in many instances, with a resulting loss in oil business to eastern refineries.

The feeling in the gas oil market has improved somewhat as a result of the stronger crude oil situation in the Southwest, and refiners in this territory believe that they will not be called upon much longer to meet competitive offerings of low-priced gas oil out of the Gulf.

Diesel Oil

Quiet trading continues in the Diesel oil market, with refiners continuing to post $1.50 per barrel, in bulk, f.o.b. refinery terminals. Demand from marine interests has held up better than has been the case with heavy fuel oil, and refiners are rather optimistic regarding a continuance of good demand over the balance of the year.

As is the case with heavy fuel oil, American marketers are running into stiff competition in Diesel oil sales at European ports from both the Soviet and Rumania.

Lubs

Cylinder oils have come in for a heavier demand during the past week, and the market undertone has definitely stiffened. With crude oil on the up-grade, and further price advances in sight, refiners are less anxious to part with cylinder oil stocks at today's going prices, and are reluctant to book forward business at current price levels. Buyers, on the other hand, appear to have sensed a turn in the market, and are more inclined to cover forward requirements to some extent.

Demand for industrial lubs continues rather sluggish, as is usual during the summer months, and refiners do not look for a turn for the better in this division of the market until after Labor Day.

Wax

Price changes were lacking in the wax market during the past week but inquiry picked up somewhat, and volume of actual business on the spot position was reported to have shown improvement over that of recent weeks. While refinery holdings of fully refined are large, there does not appear to be any oversupply of either 133-135 a.m.p. or 135-137 a.m.p., and prices on these grades are showing a strengthening tendency.

Export inquiry for both crude scale and fully refined grades is on the increase, and traders here look for considerable export business to develop shortly.

Petroleum Exports

There was some pick-up in export movement of refined petroleum products through the local port during the week ended July 18, naphtha in particular showing a pronounced gain under the influence of one shipment of some 3,300,000 gallons of deodorized naphtha on the tanker Ardor, consigned to Stockholm or Oxelosund. Kerosene, fuel oil, paraffin wax, and refined petroleum exports also increased over the previous week's totals.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	July 18	July 11	July 4
Gasoline	350,000	360,000	110,000
Naphtha	3,675,000	10,000	225,000
Kerosene	350,000	.....	15,000
Fuel oil	275,000	110,000	225,000
Lubricating oil	975,000	925,000	3,620,000
Petroleum, refined	1,295,000	10,000	2,150,000
	Pounds		
Petrolatum	.....	9,000	.....
Paraffin wax	1,450,000	625,000	1,390,000
Refined	.....	50,000	95,000
Scale	135,000	85,000	50,000
Lubricating grease	750,000	400,000	400,000

Further reports of expected upward revisions in posted prices for crude oil are apparently bringing about more confidence in refined products on the part of export operators, and traders here report an encouraging pick-up in inquiry this week.

Export Market

Gulf sellers have generally advanced prices on spot gasoline for export, the increases averaging one-quarter cent per gallon, and marking the first real recovery in the market since East Texas became such a factor. While the new schedule of prices, although representing an advance, is still under nominal posted prices which have ruled for the past several weeks, it reprents an actual market, as opposed to the nominal basis of recent quotations. Present asking prices for gasoline follow: 58-60, U. S. Motor, 3⅛ to 3⅜ cents per gallon; 60-62, 400 endpoint, 3¼ to 3⅜ cents; 61-63, 390 endpoint, 3⅜ to 3½ cents per gallon; 64-66, 375 endpoint, 3¼ to 3½ cents per gallon. Kerosene is also stronger, with the Gulf market quoted firm at 3½ cents per gallon.

Two cargoes were closed during the week. The first, for early August shipment to France, comprised 6,000 tons of 64-66, and was reported booked at 3¼ cents, f.o.b. Gulf, although made on a c.i.f. basis. The second, for 8,000 tons for second-half August shipment, was made up of 5,000 tons of 64-66, at 3¼ cents, 1,000 tons of water white at 3¼ cents, and 2,000 tons of Navy at 3 cents, and is also for France. These two cargoes were closed before the advance in

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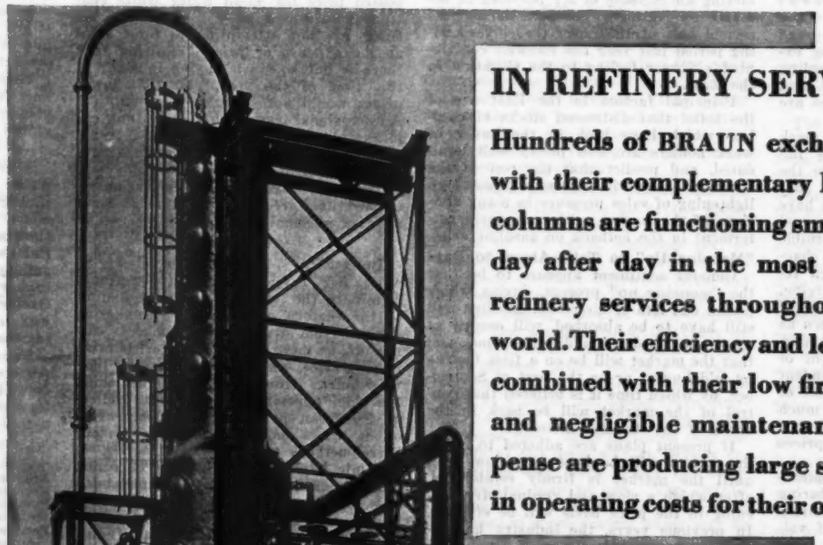

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Brief Items for Petroleum Refiners

Explain Terms of Richfield's Large Gasoline Contract

Federal Judge Henry W. Goddard has approved a contract between the Richfield Oil Corp. of New York and the Arkansas Natural Gas Corp. by which the former purchases from the latter approximately 4,000,000 bbls. (11,000 bbls. daily) of gasoline for the year starting August 31. The gasoline is to be refined at the Shreveport, La., refinery of the Louisiana Oil Refining Corp., which is a subsidiary of the Arkansas corporation.

William C. McDuffie, receiver for the Richfield Oil Co. of California, represented the buyer. The contract provides that the Arkansas corporation furnish from 75 to 90 per cent of the gasoline requirements of the Richfield Oil Co. of New York which is the marketing subsidiary of the Richfield Oil Co. of California with a large distribution in the eastern states. The remainder of the gasoline will be furnished by the Richfield of California, the exact quantity to be determined from time to time by the buyer.

In the past the bulk of the gasoline distributed by the Richfield Oil Co. of New York has been furnished by the California company. Due to proration programs, the refinery output of the Richfield in California has been curtailed so that it does not have a large surplus output to ship to eastern points.

The gasoline to be shipped from the Shreveport refinery, it is reported, is required to have exceptionally high antiknock rating for Mid-Continent gasolines. The Richfield company for several years has stressed the antiknock properties of its gasoline obtained from California naphthenic base crude oils.

The Louisiana corporation has been refining large quantities of high octane number gasoline and for some time has had a contract with a large eastern distributor covering the sale of part of its output. The refinery has Tube and Tank cracking units of the high-pressure type. The bulk of the refinery's crude oil supply is now coming from the East Texas fields where the Arkansas corporation has production with a pipe line connection to the field.

COMPLETE PLANT SOON

The refinery of the Peerless Refining & Gasoline Corp. in the Oklahoma City area will be completed within a few weeks according to owners. Construction work at the plant started about the middle of July and the corporation hopes to have the plant completed about September 1.

The plant, which will have a capacity of 4,000 bbls. of crude oil daily, is located in the north end of the field (NW Section 36-12-3w) near the plant of the Century Petroleum Co. The Peerless corporation was recently incorporated with a capitalization of $100,000 by E. E. Peveto, O. S. Matson and J. M. Singleton.

TEXAS EAGLE RECEIVERSHIP

The Texas Eagle Refining Co., which operates a small refinery at Dallas with station outlets in that territory, has been placed in the hands of a receiver by the District Court of Travis County, Texas. The Attorney General's Department was the plaintiff in the receivership, alleging that the company had failed to pay the state gasoline tax since last September. Penalties of $1,600 totaling $270,000 are asked by the State.

Robert Hunt, Dallas, was named receiver of the company. Ben Rabinowitz is president of the company and E. Hunter, secretary and treasurer.

DEMAND FOR ANTIKNOCK AND LOW VAPOR PRESSURES IN GASOLINES

The demand for gasolines of higher antiknock ratings and the greater emphasis being placed on vapor pressures in motor fuels has been reflected in the type of equipment recently installed at several refineries and that in prospect for a number of plants in the near future.

At no period in the history of the refining industry has more attention been paid in marketing to the antiknock quality of gasoline now generally rated in terms of octane numbers. In both foreign and domestic markets buyers are requiring higher and higher octane number in their gasoline purchases and to meet these requirements major changes in refinery operation are necessary.

In marketing, the time has arrived where the average straightrun gasoline from paraffin or mixed base crude oils is not considered satisfactory for companies to market either through their own marketing facilities or through jobbers, except at sacrifice prices. This is due to the fact that the gasoline is low in knock rating and this is now considered as objectionable in motor fuel specifications as a poor distillation range. The marketing fraternity and the consumers have rapidly become "antiknock minded" and use the terms "benzol equivalent" and "octane number" — the measuring sticks of antiknock performance — as much as they do gravity, initial, endpoint and other nomenclature of motor fuel specifications.

A few of the larger refiners have set the pace by regular grades of motor fuels with knock ratings of from 65 to 72 octane number. In practically all cases the marketing of regular grades of gasoline with these high ratings has required special refinery equipment. Only a few crudes will furnish these gasolines either by straightrun distillation or by ordinary cracking operations.

Rebuilding Programs

To meet these competitive conditions, refiners are usually faced with the necessity of rebuilding their present cracking equipment or installing new units. This situation is of particular importance to a large group of refiners operating with Pennsylvania, Mid-Continent, Rocky Mountain, and some of the newer crude oil supplies in California. By straightrun distillation these crudes usually produce gasoline with octane numbers ranging from 45 to 55. Most of the older processes only add from 5 to 10 points when the charging stocks from these crude oils are cracked. In general, these straightrun gasolines do not give satisfactory performance in the modern motor car engine with its higher compression ratios. Blending with the cracked gasolines raises the rating but tends to bring the entire gasoline output below the level desired by the distributors.

The fact that all of the major refiners and most of the smaller operators either have Ethyl Gasoline licenses or manufacture their own premium grades, complicates this situation. The attractiveness of an Ethyl Gasoline franchise is dependent on the ability of the refiner to use minimum quantities of ethyl fluid in blending his base stock to meet the requirements of the Ethyl Gasoline Corp. Many of the straightrun gasolines will not meet the minimum requirements when the maximum quantity of ethyl fluid allowed by law is used. Refiners with modern manufacturing processes have the advantage in that they can save up to 2 cents a gallon in their Ethyl Gasoline

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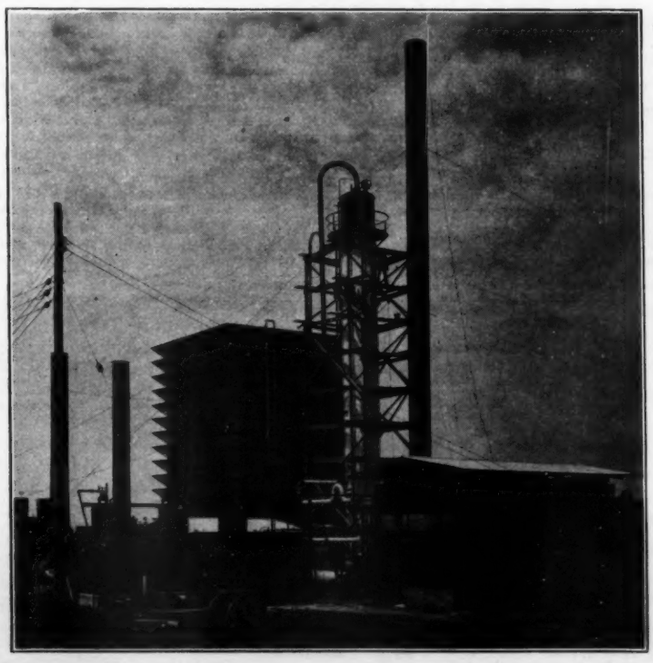
NEW EAST TEXAS REFINERY



Overton, Tex., plant of the Arrow Refining Co., Fort Worth, Tex., now operating with East Texas crude oil. Plant has a capacity of 2,500 bbls. daily.

TIDE WATER BUILDING LARGE CRACKING UNIT

The Tide Water Oil Co. now has under construction at its Bayonne, N. J., plant one of the largest if not the largest single cracking unit ever built. The unit which is of the Tube and Tank high-pressure type will have a rated capacity of 4,500 bbls. of gasoline daily. The Tide Water company for several years has had the same type cracking equipment of smaller capacity in operation at its Bayonne refinery.

The plant is being built by the Lummus Co. of New York City. The equipment is being fabricated at the shops of the Babcock and Wilcox Co. and the Superheater Co., of which the Lummus Co. is a subsidiary. In the fabrication of the pressure equipment X-ray photography of welded seams is used to assure perfect welds.

APPOINT E. L. PAULEY HERCULES' RECEIVER

E. L. Pauley, who has been identified with California refining and marketing for several years, has been named receiver of the Hercules Gasoline Co., Ltd., an independent company with offices in Los Angeles. The receiver was appointed by federal court with the consent of the Hercules officials. The company lists assets of $1,000,000 with liabilities of $700,000.

The Hercules company has operated a refinery at Los Angeles for several years and also has distributing facilities in the Los Angeles territory. The refinery has a rated crude oil capacity of 5,500 bbls. daily, and a Jenkins cracking unit with a capacity of 2,500 bbls. daily.

VALVOLINE ENLARGING

CHICAGO, July 24.—Valvoline Oil Co. is carrying out an expansion program in its refining and marketing facilities which will give the company at least 50 per cent more crude oil capacity at its Butler, Pa., refinery, and add four Pacific Coast bulk terminals for its lubricating oils, it was learned today when the company held its second semiannual sales convention here.

Plans for the Butler refinery include the installation of cracking equipment; filters, wax presses and other lub plant facilities. Construction work on the Pacific terminals has been completed at Portland, Ore., and is progressing rapidly at San Francisco. Preliminary work is under way at Seattle, Wash., and Los Angeles. Capacity at these plants will be 150,000 gallons of finished lubricating oil. At is edgewater, N. J., bulk terminal the Valvoline company has a storage capacity in excess of 7,000,000 gallons.

NEW RUSSIAN PLANT

NEW YORK, July 27.—The Soviet oil trust has laid the foundation for a new large oil refinery and oil pipe line in Tadzhikistan, according to reports from Russia to Amtorg.

The workers, engineers and technicians on the project have formed "shock brigades" and pledged themselves to complete the construction work in accordance with the schedule.

STANDARD FILES SUIT

The Standard Oil Co. of Pennsylvania, a subsidiary of the Standard Oil Co. (New Jersey) has filed suit in federal district court at Philadelphia against Charles A. Goldsmith to restrain the use of the name "Standard" in the operation of a service station at Douglasville, Pa. It is alleged in the petition that the defendant's station closely resembles in color scheme and general character a regular Standard station.

ROCKY MOUNTAIN AREA

(Continued from Page 52)

west of Cheyenne, is drilling at 515 feet in sandy shale.

Converse County

The Continental Oil Co.'s No. 50 Whiteside, NW SW SW, Section 9-33-76, Big Muddy, is drilling at 4,303 feet in the Dakota formation.

Fremont County

The Texas Production Co.'s No. 1-A State, SW SW, Section 36-34-95, Alakali Butte, is being completed as a gas well after plugging back from 4,485 feet to 4,480 feet. This well had a flow of 12,000,000 feet of gas, accompanied by 20 to 25 bbls. of oil in the Dakota at 4,380-93 feet about a year ago. It was planned to go on down and test the Sundance, but the gas pressure caused all kinds of trouble with the casing. The operation has been an unusually difficult one and two holes were lost.

The Kinney-Coastal Oil Co. has changed the location of its Pilot Butte test from the C NW NE, Section 22-3n-1w, on the Hislen tract, to the C SW NE of the same section on the Chatteron-Weeks tract. Rig is being built. The change in location brings it to within half a mile of its big gasser.

The Producers & Refiners' No. 2, NW SE NW, Section 33-34n-92, Muskrat Dome, was cored to 6,000 feet and reamed to 5,966 feet. At 6,000 feet the core showed considerable gas saturation and slight oil discoloration.

The Ward Oil & Gas Co.'s No. 1, NE cor., Section 28-34-90, Dutton Basin, is standing with the 8¼-inch cemented at 2,030 feet.

Lincoln County

The Wyoming Production Co.'s No. 1 Neil, NW SE NW, Section 14-24-113, Fontenelle district, is drilling at 1,630 feet after a shutdown for the 8¼-inch.

Sweetwater County

The Mountain Fuel Supply Co.'s No. 1 Tucker, C NW SE, Section 18-13-99, Alkali Creek, is bottomed at 3,630 feet and cleaning out at 3,550 feet.

MONTANA

Carbon County

The Ohio Oil Co.'s No. 1 Montana Industrial, SE SW NE, Section 11-7s-21, an offset on the north to the discovery well on the Dry Creek Dome in the Lakota sand, which had water in the top of the Lakota at 5,581 feet, was plugged back to the Dakota and is being tested. A show of gas was encountered in the Dakota and it may make a small gas well. The same company's No. 1 Souders, C SW SE, Section 2-7-21, half a mile to the north, is being plugged back from a total depth of 4,400 feet to 4,003 feet and will complete as a gas well in the second Frontier sand. The Ohio's No. 1 Chapman, C SW SW, Section 2-7-21, half a mile to the west of the Souders well, is shut down at 839 feet to change over to rotary. The Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7-22, a little more than a mile to the east of the discovery, is drilling at 3,740 feet.

Glacier County

One new location in the Cut Bank Field was made this week in L. B. O'Neil, trustee's No. 1 State, C NE NW, Section 11-35-5w, for which rig has been completed and tools are being moved in. The location is a mile to the south of No. 1 Taylor & Spikes, a completion reported last week. Several of the drilling wells are nearing completion. O'Neil's No. 1 Schneider, C NE SE, Section 32-36-5w, landed the 8¼-inch at 2,750 feet and is about ready to drill in. His No. 1 Hughes, C NW SE, Section 3-35-5w, is drilling at 2,150 feet, and No. 1 Berger, C SE NE, Section 2-35-5w, is drilling at 2,300 feet. O'Neil's No. 2 State, C NE SW, Section 33-36-5w, is rigging up, and No. 1 State, C SW SW, Section 36-36-5w, is fishing for bailer at 2,600 feet.

The Fulton Petroleum Co.'s No. 1 Blackfeet, SW NE NE, Section 28-36-12w, Milk River district, is drilling below 2,500 feet in the Colorado shale and is reported to have had several gas shows.

Rosebud County

The Prairie Oil & Gas Co.'s No. 1-XX, Contract 4, NE SW NW, Section 26-10n-39, Porcupine Dome, is digging cellar. This test is to be drilled with rotary equipment in an effort to get through the heavy water pressure in the Kootenai formation and test the Quadrant and the Madison lime. The Noble Drilling Co. has the contract which calls for a 5,000-foot hole, if necessary. This will carry it to the granite. Lloyd Noble, of Tulsa, head of the drilling company, and C. D. McCoy and C. D. Wells, of the Prairie staff at Parco, flew by plane from Casper to Forsyth, Mont., the past week on their way to the location.

Liberty County

The Eleanor Association's No. 1 Eleanor, SE SE, Section 11-33-6e, Utopia district, which was taken over by the California Co. to complete, is bottomed at 3,214 feet and pulled the 6¼-inch with the tools in it. Tools were recovered and pipe rerun and drilling has been resumed.

In the Bear's Den district, G. G. Howard and others' No. 1 Lange, C SE SW, Section 7-36-6e, which will extend the field half a mile to the north, encountered gas in the top of a sand in the base of the Colorado shale at 1,980 feet and is lowering the 6¼-inch to the top of the sand and will cement. Howard's No. 2 Ritter, C NE SE, Section 12-36-5e, is rigging up, and his No. 2 Schoonover, C SE NE, Section 13-36-5e, is ready to spud. The Liberty Gas Co.'s No. 1 McDowell, C SE SW, Section 13-36-5e, is cementing surface pipe at 150 feet, and the People's Oil & Gas Co.'s No. 1 First National Bank, C SE NW, Section 17-36-6e, is drilling at 1,400 feet.

Toole County

The Askalta Oil Co.'s No. 1 Farbo, SE cor. NE, Section 2-37-4w, Border Field, is drilling at 2,200 feet, and Oil Drillers, Ltd.'s No. 1 Farbo, NE SE SE, Section 3-37-4w, is drilling at 2,300 feet.

Teton County

The Earl Oil Corp., Ltd.'s No. 1 Gad, SE cor. NE, Section 22-22-8w, Sun River, is drilling at 2,700 feet after landing casing at 2,650 feet, and the Trans-American Oil Co.'s No. 1 Lackey, SE NE NW, Section 28-24-8w, Teton district, is drilling at 375 feet.

Cascade County

The Andover Oil Co.'s No. 1 Floweree, NW cor. SE, Section 20-21-2w, Big Coulee, is drilling at 2,050 feet.

UTAH

The Price River Petroleum Co. is preparing to test a block of acreage 2 and 5 miles southeast of the town of Price and northwest of Wellington, in Carbon County. The structure was mapped by W. H. H. Cranmer and the first well will go to a shallow depth only. If this is successful, a deep test will be drilled to 5,000 feet. Just to the northwest in the town of Price the company drilled its No. 1, SW cor. NE, Section 16-14s-10e, to 3,400 feet. It had several shows of oil and gas, including a carbon dioxide gas at 3,074 feet which probably came from the same horizon that is producing carbon dioxide gas on the Farnham Dome.

The Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 21-23-21, Salt Valley Dome, is shut down for orders at 3,500 feet at which depth it showed for a 15-bbl. well.

The Diamond Oil Co.'s No. 1, SE NW, Section 16-8s-5e, Diamond Fork Canon, is resuming at 3,260 feet in sandy lime.

Arthur E. Gibson and Earl O. Anderson, of Price, and a group of Los Angeles people, are preparing to drill a test on the Last Chance Dome on which they have 30,800 acres of government land held under 19 permits blocked up. The test is to be drilled under a co-operative group development agreement. The structure is located in the southwestern corner of Emery County, the southeastern corner of Sevier County and northern Wayne County. It is principally in Townships 25, 26 and 27s, Ranges 5, 6 and 7e. The well will start in the Carmel limestone (upper Jurassic), and will bottom in the Pennsylvanian at 5,824 feet.

Average daily pipe line runs in week ending July 25:

WYOMING	
Salt Creek	24,610
Big Muddy	1,870
Byron	10
Dallas-Derby	410
Dutton Creek	.....
Elk Basin	640
Ferris	40
Frannie	50
Grass Creek	2,110
Hudson	270
LaBarge	1,010
Lance Creek	320
Lost Soldier	3,900
Lovell	.....
Oregon Basin	1,360
Osage	1,060
Rock River	1,910
Poison Spider	180
Simpson Ridge	.....
South Casper	780
Teapot	20
Warm Springs	70
Total Wyoming	40,620
MONTANA	
Buckley-Border	630
Cat Creek	980
Dry Creek	400
Kevin-Sunburst	4,470
Lake Basin	70
Pondera	1,370
Total Montana	7,920
COLORADO	
Florence	230
Fort Collins	1,050
Iles	1,210
Moffat	920
Orchard	350
Rangely	20
Tow Creek	290
Walden	140
Total Colorado	4,210
NEW MEXICO	
Rattlesnake	671
Hogback	500
Table Mesa	80
Artesia	630
Cap Rock	.....
Getty	.....
Hobbs	37,047
Jal	1,210
Lea City	2,600
Eunice	485
Total New Mexico	43,223
Total Rocky Mountain area	95,973
Total previous week	95,127
Difference	846

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 34)

Pulse-Shell Pet. Corp.'s No. 1 Simpson, SE NE, Sec. 140, Blk. 3, L&G.N. Sur. ..... Standardizing 2,605 ft.

Stockoll & Reiger's No. 1 Davidson, 660 ft. N and W, Sec. 64, Blk. B-2, H.&G.N. Sur. ..... T.D. 3,250 ft; pulled liner.

Stockoll & Reiger's No. 1 Short, 330 ft. S and W, Sec. 17, B. E. Chaney Sur. ..... C.O. 3,031 ft.

Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Rig; elevation 2,686 ft.

Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.S.&F. Sur. ..... Location.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Spudded and S.D.

Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. ... S.D. 450 ft.

Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... Big gas 2,330 ft. and 2,395 ft.;

Liner et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ..... Spudded and S.D.

Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.D. 3,115 ft.

Stanolind O. & G. Co.'s No. 2-B Pitcher, 990 ft. S, 330 ft. E, W½ SW, Sec. 19, Blk. M-21, T.C.R.R. Sur. .... Drlg. 2,132 ft.

Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, I.&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,167 ft.

MOORE COUNTY

Interstate's No. 1 Nield, C NE, Sec. 16, Blk. 44, H.&T. C. Sur. ..... Location.

Magnolia Pet. Co.'s No. 1 Jones, 330 ft. N, 330 ft. E, Sec. 170, Blk. 3-T, T.&N.O. Sur. ..... S.D. 2,785 ft.

Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

Sunray Oil Co.'s No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 193, Blk. 3-T, T.&N.O. Sur. ..... Cellar.

Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. ..... Location.

Texas Interstate P. L. Co.'s No. 1-33 Sneed, C SW, Sec. 33, Blk. 6-T, T.&N.O. Sur. ..... T.D. 2,655 ft; I.P. 16,250,000 ft. gas.

Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. ..... Location.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.

Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. S, G.C.&S.F. Sur. ..... S.D. 300 ft.

POTTER COUNTY

Red River Gas Co.'s No. 6-A Bivins, 1,344 ft. S, 1,089 ft. W, SE, Sec. 37, Blk. M-20, G.&M. Sur. ..... Location.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... Fishing 850 ft.

Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-2, H.&G.N. Sur. ..... S.D. 2,650 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9, H.&G.N. Sur. ..... S.O. 1,966 ft; S.D. 2,005 ft.

JAPANESE PATENT TWO NEW PLANT PROCESSES

NEW YORK, July 27.—The Technological College of Osaka has developed a cracking process, which was patented in Japan last December, and patent applications for which have been made in Great Britain, the United States, and Germany. The process consists of mixing with each 100 parts of crude oil one-tenth part of catalytic carbon and two parts of chrome mixture, a compound of potassium bicloromate and sulphuric acid. After stirring and settling supernatant liquid is removed, neutralized with caustic alkali and water and then dehydrated. In the final process, 25 parts of industrial alcohol and one part of acetone are added, the final result being a yield of 90 parts of fuel gasoline, which product is understood to have physical properties similar to those produced by conventional refining or cracking.

The second process covers the synthetic production of motor fuel from alcohol, which is produced in considerable quantities as a by-product of the Japanese sugar industry. Mitsui & Co. are reported to have acquired the patents for exploitation of the process, which was developed by the Japan Gasoline Co. of Tokio.

ON CORROSION COMMITTEE

K. V. King, Standard Oil Co. of California, San Francisco, Calif., has been appointed a member of the Committee on Corrosion of Oil Field Equipment of the American Petroleum Institute's Division of Production. He succeeds E. P. Bly, resigned.

FIND OIL IN ARGENTINA

The discovery of oil in Argentina near the Chilean frontier has been reported to the Argentine government by a Chilean mining engineer named Castillo, according to the Mining Journal, London.

BENZOL HAS GREAT ANTIKNOCK QUALITIES

(Continued from Page 26)

ter vapors. Final traces of tar are removed on the plates of a P. & A. tar extractor.

The gas is then reheated and the ammonia which it lost is restored in a mixing main just before the gas enters the lead line saturators which contain a 5 per cent solution of sulphuric acid. Here ammonium sulphate crystallizes out. The gas is then passed through steel towers which are 90 feet high and 12 feet in diameter. The towers are filled with wooden hurdles and here the gas is sprayed with "wash oil" as it moves upward through the towers and another portion of the light oils contained in the gas is removed. The absorbing oil is thus saturated with benzol, toluol, xylol and naphthalene which are removed by passing the oil through a series of heat exchangers and preheaters to a continuous still where live steam is blown into the oil releasing the desired fractions which are then condensed and charged to the steam stills at the benzol refinery. The removal of these products not only provides valuable by-products, but it also eliminates the danger of drip oils collecting in the gas holders and street mains, and the deposition of gum compounds, such as indene, styrene and cumarene on governors and in meters.

Refining of Light Oils

The refining of the light oils removed from the absorbing oil or distilled from the coal tar is accomplished in three steps. The oil is charged into steam stills and the crude cuts are made by fractionating in towers located above the stills. A dephlegmator at the top of each tower condenses the vapors not desired in the forward flow and these are returned to the still through a back flow pipe. The temperature for each cut is closely regulated so that the variation of less than 0.5° C. may be obtained. The following boiling points are considered sufficiently accurate for all commercial practice: Benzol, 80.2° C.; toluol, 110.4° C.; paraxylol, 137.5° C.; meta-xylol, 138.5° C.; and ortho-xylol, 142.3° C. The cuts made is distillation of the coal tar are known as light, oil, 170° C, (benzol and homologues); middle oil, 230° C. (phenol and naphthalene); heavy oil, 270° C. (creosote); anthracene oil, above 270° C. (anthracene); and pitch remains in the still as residue.

The second step in refining the cuts from light oil is the acid treatment and caustic soda and water wash. The sulphuric acid used is 60° and 66° Baume in successive contacts. The treatment removes olefins, indene, styrene and other undesirable compounds. The sulphuric acid treatment must be controlled very closely to prevent sulphonation of the benzol which dissolves slowly in this acid upon warming. Contacting is done in agitators.

Mercaptans Removed

The treated distillates are finally refined in other steam stills which are similar in design and operation to the crude stills, but the control is more exact to produce narrow range products. In the crude distillation extreme care has been taken in producing the toluol cut to remove mercaptans (such as methyl mercaptan) which may be present in the form of dissolved gases. Methyl mercaptan boils at 6° C., and ethyl mercaptan boils at 36° C. The removal is accomplished by boiling the still charge gently with a vent opened at the top of the column to permit the escape of the gases driven out of solution. The vent is closed when the benzol vapors begin to leave the opened vent. If the mercaptans are not eliminated in the crude or first distillation they are converted by the sulphuric acid used in treating into the methyl disulphide which boils at 112° C., within 2 degrees of toluol, and the ethyl disulphide which boils at 151° C., which is near the xylol range and within the refined solvents range. Caustic soda solution readily removes hydrogen sulphide, but the organic disulphides are extremely difficult to eliminate.

One of the major accomplishments of the Peoples Gas Light & Coke Co. of Chicago has been its success in removing naphthalene from the coal gas. Naphthalene is extremely volatile far below its own boiling point so that some of it could easily pass through the scrubbers and purifiers and get into the gas mains where it would form a solid deposit obstructing the pipes. As a recovered by-product naphthalene can be used to increase the illuminating power of coal gas as in the albo-carbon lamp. It is also a mild insecticide, a motor fuel, and is utilized in the manufacture of resin, explosives, dyes, paints, rubber solvent, leather and wood preservatives, celluloid and phthalic acid.

Products Obtained

The partial list of intermediate and ultimate products obtainable as by-products in the manufacture of coal gas has been drawn up by an engineer of the Chicago company. It is as follows:

Intermediate products: Refined tar, crude phenol, heavy naphtha, resin oils, pyridine, anthracene oil, aqua ammonia, naphthalene, ammonium sulphate, carbonate and chloride, salicylic acid, carbolineum, benzol, toluol, xylol, cresol, aniline oil.

Ultimate products: Paving and roofing materials such as pitch, tar paper, creosote blocks, shingle stain; perfumes, methyl salicylate, benzyl alcohol, cinnamic acid, benzonic acid, oil of mirbane, etc.; medicines, phenacetin, aspirin, salol, lysol, phenolax, ammonium carbonate, aromatic spirits of ammonia, saccharin, salvarsan, acetanilid, exalgin, anthraquinone, etc.; dyes, anthracene blue, alizarin cotton dyes, oxamine violet and red, lithol red, martins yellow, buffalo black, naphthol yellow, indigo blue, eosine, malacite green, Bismark brown, congo red, azo dyes, aniline black, mauve, etc.; paints and varnishes, turpentine substitute, paint oil, synthetic varnish, varnish remover, wood stains, resin oil, paint thinner, black pitch paint, screen paints, lampblack, etc.; rubber compositions, rubber cement, electrical insulation, rubber solvents, bakelite, phonograph records, etc.; photographic, rodinol, metol, hydro-quinone, potassium prussiate, cyanides, etc.; chemicals, picric acid, phenol, phenolphthalein, methyl orange, anhydrous ammonia, ammonium chloride, nitrous oxide, etc.; foodstuffs, saccharin, sodium bicarbonate, ammonium carbonate, salicylic acid, sodium benzoate, flavoring extracts (salicylates), etc.; fertilizers, ammonium sulphate and phosphate, sodium ferrocyanide, etc.; explosives, melinite, ammonite, trinitrotoluol, etc. Some of these products, obviously, have uses other than those designated. An instance of the new field of utilization being opened constantly by research is that of the gum and color inhibitors, such as hydro-quinone, anthracene, etc., used in producing a better gasoline. Another product, resorcinol, has been converted into hexylresorcinol, a germicide said to be 40 times more effective than phenol (carbolic acid) although safe for use as a mouth wash. And now work is being done on the possible synthesis of rubber from resorcinol.

NO OPPOSITION TO BIG OIL MERGER IS SEEN

(Continued from Page 32)

to stockholders be modified so as to provide that stockholders of Vacuum Oil Co. will receive 2½ shares of the capital stock of Socony-Vacuum Corp. for each share of stock of the Vacuum Oil Corp. surrendered to the Vacuum Oil Co. for cancellation. The stockholders of the Standard Oil Co. of New York will receive new certificates in the name of the Socony-Vacuum Corp. for their present shares.

"The board of directors of the Socony-Vacuum Corp. will upon consummation of the contract be composed of directors chosen in equal numbers from the present directorates of the Vacuum Oil Co. and the Standard Oil Co. of New York, thus giving to those now conducting the business of each company an equal voice in the management.

Two Subsidiary Companies

"To preserve the goodwill attached to the names of the present companies there will be organized two subsidiary corporations of Socony-Vacuum Corp., to be known respectively as 'Vacuum Oil Co., Inc.,' and 'Standard Oil Co. of New York, Inc.' These subsidiaries will be utilized in carrying on with the same management the businesses now conducted respectively by the Vacuum Oil Co. and the Standard Oil Co. of New York.

"We repeat, for your information, the following general description of the characteristics of the business of the two companies and their influence on the proposed merger, given in our letter of February 21, 1930:

"'The business of the two companies is complementary in character. In general, the business of the New York company in the United States is primarily in crude production, refining and marketing of gasoline and kerosene; the business of the Vacuum company in the United States is primarily in the manufacture and marketing of high grade lubricating specialties for which it has established a world-wide reputation and market. The bulk of the business of the New York company is in the United States; the bulk of the business of the Vacuum company is in foreign countries.

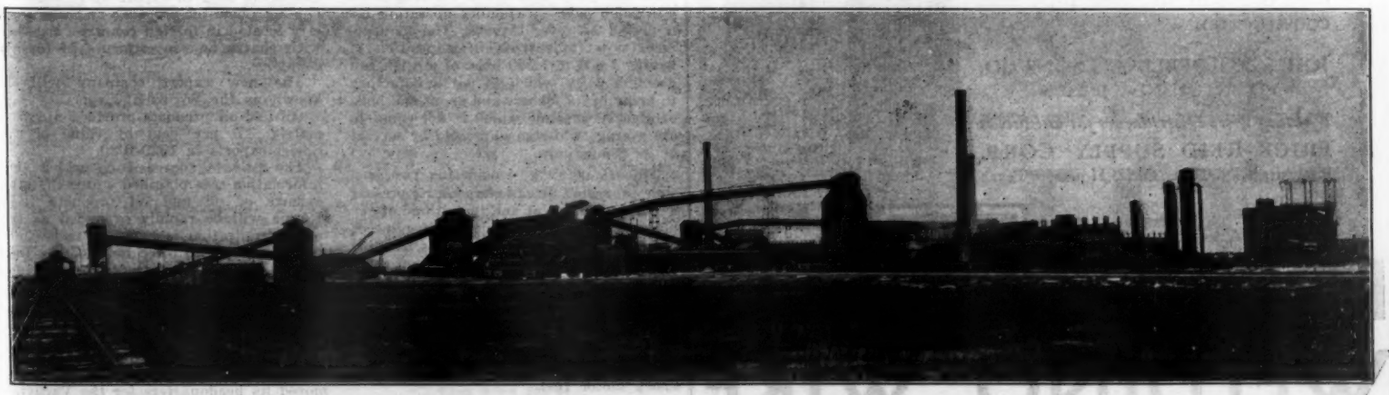
"'The Vacuum company and the New York company have been pioneer American enterprises in building up an extensive business carried on within foreign countries. The lubricating products of the Vacuum company are marketed in practically every country in the world. In addition, the Vacuum company through numerous branches and locally incorporated Vacuum Oil companies, does a valuable business in the marketing of gasoline and kerosene in important foreign markets, including Australia, Egypt, South, East and West Africa, and parts of Europe, where the New York company is not engaged in marketing these products. The activities of the New York company abroad have been principally in building up extensive storage and distributing facilities for the marketing of kerosene, gasoline, fuel oil, and other products in the large markets of the Orient and India, in Aden and all of the markets of the Near East. In these markets by the union of the companies the Vacuum lubricating specialties and the gasoline of the New York company can be distributed to advantage in competition with other companies which market both products.

Maintaining Position Abroad

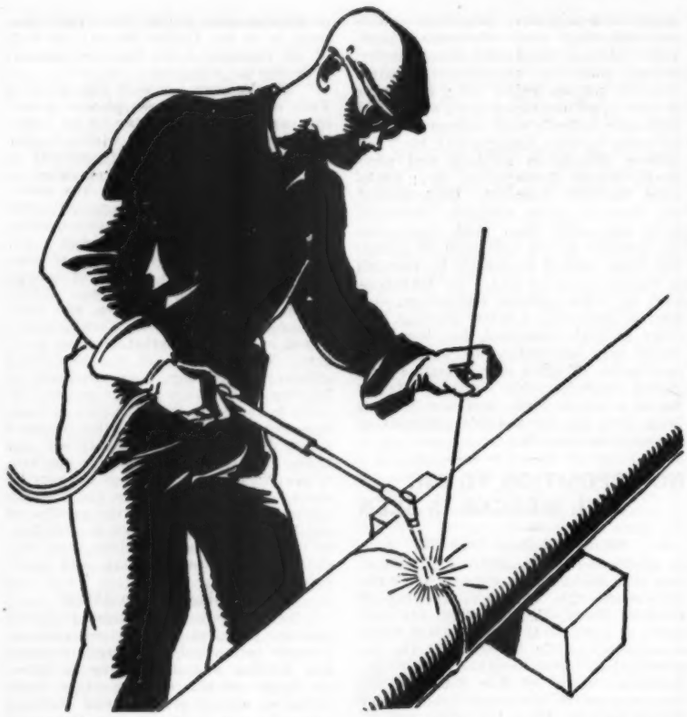
"'To maintain their position abroad against powerful foreign competitors, strongly entrenched as to crude supplies and refining and distributing facilities, the union of the complementary businesses of the New York and Vacuum companies and their resources is regarded as vitally important and directly promotive of American interests in business in such countries. The crude supply of the New York company and its refining facilities for gasoline and kerosene will tend to protect and extend the marketing outlets which the Vacuum company has established for those products.

"'In the United States there have been rapid changes in conditions in the petroleum business which make this merger useful and appropriate for both companies. The prevailing method of doing business in the oil industry has come to be for each company doing a general business in petroleum products to have its own crude supply, its own refining facilities, and to offer a full line of petroleum products through intensive local marketing facilities. The New York company, handling gasoline and petroleum products generally, has developed along these lines and has extensive facilities for distributing gasoline to motorists. In the United States, the Vacuum company, having devoted itself primarily to the manufacture and marketing of its high grade lubricants, has created a national consumer demand for its lubricating specialties. The merger will make available to the distinctive Vacuum products a very much wider distribution and sale, and it will also make available the large crude oil production of the subsidiaries of the New York company.'

"Your directors believe that the approval and carrying out of the contract in its revised form will be in the best interests of the stockholders of your company."



Coke by-products plant at Chicago which processes 45 cars of coal a day.



Strong, tough welds ...all the time

Producing strong, thoroughly dependable welds—day in and day out, without a slip—is a problem that pipe line contractors and many other users of welding are up against. They must make every possible effort to guard against weld failure—for even a single breakdown might prove disastrous.

Roebling Welding Wire is made to exactly meet the requirements of these welders.

In making Roebling Welding Wire we go to great lengths to insure its quality—and to make this quality absolutely unvarying. We work to most exacting standards and control every process of production, including the manufacture of the steel itself. Naturally Roebling Welding Wire costs more than ordinary welding wires—but it saves materially in the end.

Investigate this welding wire of superlative quality. Full information and samples for testing purposes will gladly be furnished by our distributor, Frick-Reid Supply Corporation.

Roebling Welding Wire is made in gas and electric types, for general oil field use and pipe line construction.

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TRENTON, NEW JERSEY

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Pittsburgh, Pa. Tulsa, Okla. Houston, Texas

ROEBLING WELDING WIRE

A.P.I. SEES INCREASED GASOLINE DEMAND

(Continued from Page 24)

SUMMARY OF REFINERY GASOLINE, GAS AND FUEL OIL AND CRUDE OIL DEMAND SUPPLY AND STOCKS

LAST SIX MONTHS 1930-1931 (ESTIMATED)

(Barrels of 42 Gallons)

Gas and Fuel Oil—East of California
(California not shown due to abundance of stocks)

Demand:				
Domestic	134,000,000	128,900,000	— 5,100,000	— 3.8
Export	5,800,000	5,700,000	— 100,000	— 1.7
Total demand	139,800,000	134,600,000	— 5,200,000	— 3.7
Supply:				
From refinery output	124,800,000	†124,500,000	— 300,000	— 0.2
From California	2,500,000	1,000,000	— 1,500,000	—60.0
From imports	13,000,000	10,600,000	— 2,400,000	—18.5
Total supply	140,300,000	136,100,000	— 4,200,000	— 3.0
Oversupply	500,000	1,500,000	+ 1,000,000	
Stocks:				
July 1	32,300,000	33,500,000	+ 1,200,000	+ 3.7
December 31	32,800,000	35,000,000	+ 2,200,000	+ 6.7
Addition 7/1–12/31	500,000	1,500,000	+ 1,000,000	

Crude Oil

Demand:				
Runs to stills: East of California	350,300,000	355,800,000	+ 5,500,000	+ 1.6
California	99,500,000	83,400,000	—16,100,000	—16.2
Total runs	449,800,000	439,200,000	—10,600,000	— 2.4
Exports	11,600,000	12,300,000	+ 700,000	+ 6.0
Used as such	16,400,000	15,000,000	— 1,400,000	— 8.5
Total demand	477,800,000	466,500,000	—11,300,000	— 2.4
Supply:				
From U.S. production	430,200,000 }			
From stocks	16,600,000 }	*440,300,000	— 6,500,000	— 1.5
From imports	31,000,000	26,200,000	— 4,800,000	—15.5
Total supply	477,800,000	466,500,000	—11,300,000	— 2.4
Stocks:‡				
July 1	425,300,000	392,500,000	—32,800,000	— 7.7
December 31	408,700,000	.....	.....	
Withdrawal 7/1–12/31	16,600,000	.....	.....	

Requirements of Domestic Crude Oil—By Months

Month—	Total barrels	Average per. day	Month—	Total barrels	Average per day
July	74,600,000	2,407,000	October	74,100,000	2,390,000
August	74,600,000	2,407,000	November	71,400,000	2,380,000
September	72,200,000	2,407,000	December	73,400,000	2,368,000
Total and daily average last six months				440,300,000	2,393,000

*Balance necessary.
†Based on 35 per cent recovery from 355,800,000 bbls. of estimated crude runs.
‡Excludes heavy crude and fuel in California.

DEMAND FOR ANTIKNOCK LOW PRESSURE GASOLINE

(Continued from page 145)

costs by using the minimum quantity of ethyl fluid.

In brief, a majority of both large and small refiners in all parts of the country over the next two years will be compelled to revamp their distillation equipment either with new units or by rebuilding those already in operation. Representatives of The Oil and Gas Journal have found a general agreement among operators in regard to this situation and in most cases they are engaged in investigations preliminary to the letting of contracts.

Representative Situation

The situation of one Oklahoma refiner is indicative of many others throughout the Mid-Continent. This company operates its plant with a high gravity crude oil. For years the company considered its position particularly fortunate due to the fact that this high gravity sweet crude oil was available. This plant yields up to 50 per cent gasoline by natural distillation. The plant also has a cracking process which gave satisfactory operation for a period of several years. The management now finds itself in a position of having 1,000 to 1,500 bbls. of straightrun gasoline daily which is not satisfactory to many of its jobbers and about 600 bbls. of cracked gasoline which is not equal to the average white gasoline sold by several of its competitors.

This company is considering two possible programs. It can abandon its present cracking equipment and install one of the newer type which will yield a gasoline of much higher knock rating. This gasoline can be blended with the straightrun gasoline and can also be used in blending Ethyl Gasoline. The other program is to continue operating its present equipment and install what is commonly called a "reforming" unit for reforming the straightrun gasoline to secure a high antiknock motor fuel.

The demand for low vapor pressures in motor fuels and the expansion of the new type cracking processes has placed more and more emphasis on adequate rectifying or stabilization equipment at refineries. The new processes increased the yields of propane and butanes which are directly related to vapor pressure and adequate rectifying equipment is the only economical method of handling this problem. In this connection, one of the new gasoline pipe line systems is requiring a vapor pressure under 11 pounds in all tenders for transportation.

SPECIAL EXPORT BODY AUTHORIZED IN RUSSIA

WASHINGTON, D. C., July 27.—By a resolution of the Soviet of Labor and Defense, the All-Union People's Commissariat for foreign trade has been directed to establish under its supervision a special organization to be granted monopolistic rights in the exportation of Russian oil and oil products and the right to conduct commercial operations in foreign markets.

This organization will take over as of December 31, 1931, all assets of the Soyuzneft used in export operations, including domestic property and all property located in foreign countries together with shares and investments in foreign countries.

The new export company will be known as the Soyuzneft-Export.

Oil and oil products provided approximately 17 per cent by value of the Soviet exports in 1929-1930.

The private source from which this information was obtained states that the exports of oil and oil products from Russia will be rapidly expanded as the new organization is expected to be in a better position to force its products into foreign markets than was its predecessor. —C. E. K.

COMPANY MOVES TO FAIRFIELD

SAN FRANCISCO, Calif., July 27.—The Natural Gas Corp. of California has moved its headquarters for the Vacaville district from Vacaville to Fairfield.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 34)

FISHER COUNTY

The Texas Company's No. 1 Jean, 380 ft. from E and 400 ft. S of Sec. 201, Blk. 1, B.B.B.&C. Sur. ..... Shut down 3,107 ft.; top pay 3,089 ft.

GAINES COUNTY

Landreth Prod. Co.'s No. 1 Alley, 660 ft. from N and W of Sec. 2, Blk. A-30, P.S.L. Sur. ..... Rainbow show oil 2,965-75 and 3,030-45 ft.; 100,000 ft. gas at 4,306 ft.; drlg. 4,800 ft.; no oil showing now.

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE Sec. 4, Blk. A-8, P.S.L. Sur. ..... Total depth 4,680 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Total depth 3,202 ft.

HOWARD COUNTY

Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 20, Twp. 1s, T.&P. Sur... Spudded and shut down.

HUDSPETH COUNTY

Henshaw's No. 1 Love, C NE Sec. 9, Blk. 67½, P.S.L. Sur. ..... Drlg. 676 ft.

Patillo & Welch's No. 1 Briggs, 300 ft. from S and W Sec. 13, Blk. 73, Twp. 7, T.&P. Sur. ..... Shut down 690 ft.

Theison's No. 1 University, 3,060 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E ..... Spudded 35 ft. and shut down.

IRION COUNTY

Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W Sec. 3,081, Blk. 28, H.&T.C. Sur. ..... Total depth 2,152 ft.; underreaming 10-inch casing.

Denny & Andrews' No. 1-A Tankersley, 200 ft. from S and 2,000 ft. from E of Sec. 709, J. P. Imhoff Sur. .. Drlg. 152 ft.

Ellis et al's No. 1 Nutt, 1,350 ft. from N and 450 ft. from E of Sec. 694, Kheikenholm Sur. ..... Drlg. 777 ft.

Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... 300 ft. oil in hole from 4,155-63 ft.; drlg. out cement 5,950 ft.

Fox's No. 1 Horney, 1,520 ft. from N and 1,525 ft. from W Sec. 2, Blk. 3, H.&T.C. Sur. ..... Shut down 1,503 ft.

Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ..... Plugged back to 1,233 ft.; total depth 1,606 ft.

Straughn & Adkins Bros.' No. 1 Lee, 1,080 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur. ..... Shut down 200 ft.; to run 12½-in. casing.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur. ..... Shut down 1,005 ft.

Barney & Duffy's No. 2 King, 3,700 ft. from N and 200 ft. from E. Subd. No. 18, M. Bueno Sur. ..... Drlg. 1,917 ft.

LOVING COUNTY

Adams et al's No. 1 Wichmann, 330 ft. from NE and 2,310 ft. from SE of Sec. 84, Blk. 1, W.&N.W. Sur.... Correction of depth; total depth 4,111 ft.

Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S Sec. 46, Blk. 53, T.&P. Sur. ..... Shut down 810 ft.

Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur. ..... Drlg. 287 ft.

Eppenauer et al's No. 1 Johnson, 330 ft. from NW and SW of Sec. 56, Blk. 1, W.&N.W. Sur. ..... Drlg. 1,835 ft.; top salt 930 ft.

Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ..... Shut down 2,455 ft.

Lewis & Slagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W Sec. 6, Blk. 56, Twp. 1, T.&P. Sur... Location.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,385 ft.; correction of depth.

Martin et al's No. 2 Ramsey, 990 ft. from SE and 2,310 ft. from SW Sec. 83, Blk. 1, W.&N.W. Sur. ..... Total depth 4,018 ft.; to run 6⅝-in. casing.

Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Total depth 3,182 ft.; top pay 3,175-80 ft.; to test; est. good for 18 bbls. per day on pump.

Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Shut down 1,400 ft.

MENARD COUNTY

Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.R.R. Sur. ..... Shut down 2,360 ft.

PECOS COUNTY

Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur. ..... Location.

J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL Sec. 1, Blk. 119, G.C.&S.F. ..... Shut down 2,283 ft. for casing.

Slaughter et al's No. 1 Sun-Yates, 60 ft. S of Sun Oil Co.'s No. 1 Yates, Sec. 59, Blk. 1, L&G.N. Sur. ..... Seepage test.

Whitaker et al's No. 1 Mary Devlin, 150 ft. from N and 150 ft. from E Sec. 69, F. Hernandez Sur. ..... Shut down 430 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W Sec. 58, Cassel's Sur. ..... Spudded and shut down.

Humble Oil & Ref. Co.'s No. 1 Bolmorhea Livestock Co., 1,320 ft. from N and 1,320 ft. from W Sec. 33, Blk. 5, H.&G.N. Sur. ..... Drlg. 3,182 ft.; top salt 2,915 ft.

James & Milton's No. 1 Patterson ..... Shut down 1,465 ft.

Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur.... Shut down 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... Shut down 2,335 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Drlg. 2,966 ft.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Top pay 4,000 ft.; drlg. 4,045 ft.

George Wilson's No. 1 Page, Sec. 40, Blk. 1, 1,320 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 5,100 ft.

Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and shut down.

Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... Shut down 3,500 ft.

Simon & Brock et al's No. 1 Cruse, 2,310 ft. from S and E Sec. 119, Blk. 97, H.&T.C. Sur. ..... Show oil 1,798, 1,820, 1,850 ft.; shut down 2,500 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 8, Georgetown Ry. Sur. ..... Shut down 3,150 ft.

Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.

Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,182 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur... Shut down 6,120 ft.

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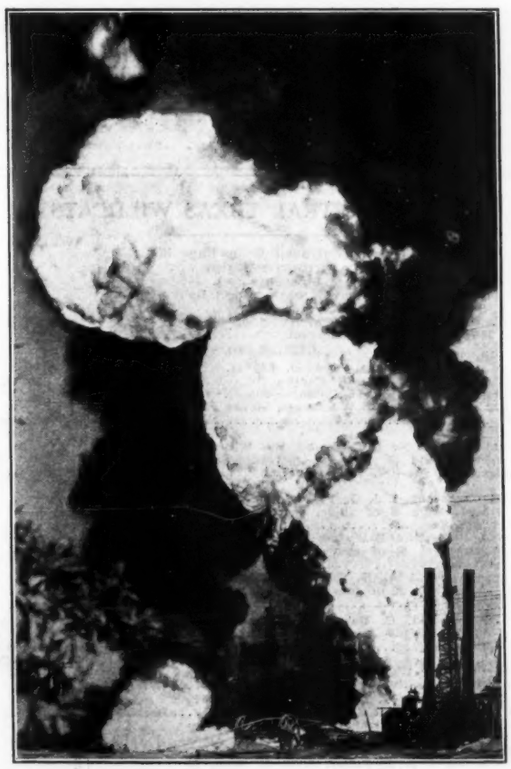


SHAFFER *high pressure* EQUIPMENT

Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ... Shut down 2,335 ft.; show oil here.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ... Shut down 760 ft.; show oil and gas 735 ft.

Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. ... Shut down 1,994 ft.

Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ... Shut down 200 ft.

UPTON COUNTY

Mintex Oil Co.'s No. 1 Lane, 2,310 ft. from N and 1,650 ft. from W Sec. 36, Blk. 1, M.-K.-T. Sur. ... Total depth 2,290 ft.; shut down for connection.

Rankin et al's No. 1 Cordova Union Land, 660 ft. from N and E Sec. 6, G.C.&S.F. Sur., 1¼ miles S of Rankin ... Shut down 2,005 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ... Shut down 5,420 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ... Shut down 6,780 ft.

WARD COUNTY

Bradford et al's No. 1 Carson, 990 ft. from NE and SE Sec. 26, Blk. 5, H.&T.C. Sur. ... Shut down 2,195 ft.

Bradford & Abell's No. 2 Boogher, 1,160 ft. from NW and 800 ft. from SW Sec. 11, Blk. 5, H.&T.C. Sur. ... Drlg. 2,215 ft.; 300 ft. oil in hole.

Bradford's No. 1 York, 330 ft. from NE and SE of Sec. 10, Blk. 34, H.&T.C. Sur. ... Drlg. 2,220 ft.

Beckley et al's No. 1 Johnson, 4,140 ft. from NE and 990 ft. from SE Sec. 8, Blk. 32, H.&T.C. Sur. ... Shut down for tubing; total depth 2,240 ft.

Buster Black's No. 1 Hall & Roberts, 990 ft. from NE and 1,650 ft. from NW Sec. 17, Blk. 32, H.&T.C. Sur. ... Shut down 1,800 ft.

Central Oil & Gas Co.'s No. 1 Barrow, 330 ft. from NW and 1,263 ft. from SW Sec. 55, J. W. Jackson Sur. ... Drlg. 1,507 ft.

Gulf Prod. Co.'s No. 8 Hutchins, 2,310 ft. from S and 990 ft. from W of Sec. 3, Blk. F, G.M.M.B.&A. Sur. ... Top pay 2,552-60 ft.; 1,200 ft. oil in hole; fishing baller 2,565 ft.

Hankinson et al's No. 1 Emery, 2,090 ft. from SE and 510 ft. from SW Sec. 26, Blk. 5, H.&T.C. Sur. ... Drlg. 2,216 ft.

Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ... Shut down 280 ft.

O'Quinn et al's No. 1 Cummins, 4,300 ft. from NE and 330 ft. from SE of Sec. 11, Blk. 5, H.&T.C. Sur. ... Top salt 800 ft.; total depth 2,303 ft.; gauged 120 bbls. oil in 24 hrs.; top pay 2,150 ft.

R. F. Owen's No. 1 Lee, 1,344 ft. from NW and 4,533 ft. from SW Sec. 1, J. Howe Sur. ... Rigging up standard tools.

Pat Moran's No. 1 Sweatt, 1,470 ft. from SW and 150 ft. from NW Sec. 12, Blk. 5, H.&T.C. Sur. ... Top pay 2,169 ft.; drlg. 2,193 ft.

Peck & Fuglar's No. 1 Merritt, 3,663 ft. from NE and 1,698 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ... Drlg. 480 ft.

Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. ... Top salt 940 ft.; drlg. 3,148 ft.

Rexford et al's No. 2 Johnson, 2,300 ft. from SE and 4,450 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ... Machine.

Shipley et al's No. 5 Hayzlett, 2,490 ft. from SE and 1,980 ft. from SW Sec. 17, Blk. 5, H.&T.C. Sur. ... Shut down 2,520 ft.; 1,500 ft. oil in hole; waiting on tubing.

Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ... Shut down 4,545 ft.

Sturm & Simms Oil Co.'s No. 1 Jones, 2,310 ft. from NE and 330 ft. from SE Sec. 25, Blk. B-29, P.S.L. Sur. ... Location.

White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. ... Shut down 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5 ... Shut down 4,640 ft.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 33)

FREESTONE COUNTY

Raley and Clark's No. 1 McLancaster (Pampier), 150 ft. from E of W line and center of N and S line B. Avant Sur. ... Derrick.

E. L. Smith's No. 1 Emily Jackson, center of N 150 acres of 300-ac. Emily Jackson tract ... Drlg. 3,520 ft.

GREGG COUNTY

Abernathy et al's No. 1 L. A. Rodden, 630 ft. from N and 320 ft. from E lines of Martha Dillard Sur. ... Set 10-in. csg. 850 ft.

O. O. Alford et al's No. 1 L. M. Colburn, 208 ft. from N and 392 ft. from E of 39.7-ac. tract, Henry Hobson Sur. ... Top sand 3,544 ft.; base 3,544 ft.; testing; T. D. 3,546 ft.

Arkansas Fuel Oil Co.'s No. 1 J. H. and Jim Whitaker, 330 ft. from S and W lines of 106-ac. tract in C. H. Alexander Sur. ... Preparing to set csg.; T. D. 3,538 ft.

Atlantic Prod. Co.'s No. 1 J. J. Fuller, 394 ft. from E and 343 ft. from S of 50-ac. tract and lease, Mowery Irwin Sur. ... Derrick.

Armstrong and Pitts' No. 1 Walker, 940 ft. from N and 1,970 ft. from E of survey, Martha Dillard Sur. ... Derrick.

P. P. Ash et al's No. 1 A. H. Tubbs, 1,550 ft. from S and 4,120 ft. from E of survey, Dolores Sanchez Sur. ... Derrick.

Becker et al's No. 1 J. C. Barrett, 330 ft. from S and W lines of N 100 acres of 320-ac. tract in G. W. Hooper Sur. ... Top sand 3,608 ft.; set 6⅝-in. csg. 3,604 ft.; T. D. 3,620 ft.

Barnsdall Oil Co.'s No. 1 G. E. Adams, 1,150 ft. from S and 3,720 ft. from W of G. W. Hooper Sur. ... Derrick.

Bob et al's No. 1 T. L. Broy, 200 ft. from E and 1,640 ft. from S of H. A. Holdt Sur. ... Derrick.

M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ... Derrick.

Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur. ... Derrick.

Bell & Graddy's No. 1 M. George (or Daniels), 225 ft. S and 650 ft. W of 26-ac. tract, Mary Van Winkle Sur. ... T. D. 3,580 ft.; fire put out.

B. L. Brooklin's No. 1 J. M. Tuttle, 150 ft. from N and 205 ft. from E of 12½-ac. lease, William H. Castleberry Sur. ... Shut down 2,800 ft.

Callahan et al's No. 2 Mollie Penn, 450 ft. from S and 160 ft. from W lines of 44-ac. tract in D. Ferguson Sur. ... Derrick.

Columbia Oil & Gas Co.'s No. 1-A Harley, 650 ft. E and 300 ft. S of SE cor. of Laura Walker 45-ac. tract, William Robinson Sur. ... Derrick.

Continental Oil Co.'s No. 1 J. J. Fleweilen, 350 ft. from N and 949 ft. from E of 200-ac. lease, Marshall Mann Sur. ... Location.

Davis and Russell's No. 1 M. E. Anderson, 150 ft. from E and 75 ft. from S of 3-ac. lease in Kilgore Townsite, Mary Van Winkle Sur. ... Shut down 3,558 ft.

Charles Davidson et al's No. 1 Paul Jones, 7,000 ft. from most southerly N line and 3,600 ft. from W, W. P. Chisum Sur. ... Shut down 3,666 ft.

Duffey-Davis and McGrede's No. 1, 1,310 ft. from N and 3,160 ft. from E of survey, Martha Dillard Sur. ... Rig up and shut down.

Eastland Oil & Gas Co.'s No. 1 B. B. Sparks, 150 ft. from N and 150 ft. from W of E 50 acres of 100-ac. tract, Harvey R. Kirk Sur. ... Drlg. 2,532 ft.

Empire Gas & Fuel Oil Co.'s No. 1 Mrs. L. J. Rogers, 330 ft. from N and E lines of 66.5-ac. tract in George A. Thomason Sur. ... Coring 3,596 ft.

Dr. J. C. Falvey et al's No. 1 fee, 150 ft. from S and 150 ft. from W of 58-ac. tract, Marshall Mann Sur. ... Rig up.

Greer's No. 1 L. M. Colburn, 150 ft. from E and 150 ft. from S of 46-ac. lease, 5,700 ft. from E and 350 ft. from N of survey, Henry Hathaway Sur. ... Rig up.

Harper Petroleum Corp.'s No. 1 Woodley Jones, 2,000 ft. from N line and 3,900 ft. from E line of William H. Castleberry Sur. ... Derrick.

Galves Petroleum Corp.'s No. 1 M. T. Cole, 1,000 ft. E and 2,100 ft. N of NE cor. of Samuel Brooks Sur. in the J. M. Meador Sur. ... Derrick.

Gulf Production Co.'s No. 1 T. C. Reeves et al, 175 ft. from S and 525 ft. from W lines of lease in G. F. Penn Sur. ... Running csg. 3,632 ft.

Howard and Russell's No. 1 Stone, 150 ft. from N and 150 ft. from E of 100-ac. tract, Bailey Anderson Sur. ... Derrick.

Humble Oil & Refining Co.'s No. 1 W. W. Holland, 150 ft. from E and 336 ft. from S lines of 246-ac. tract in M. Mosley Sur. ... Top sand 3,519 ft.; T. D. 3,560 ft.; sidetracking liner.

Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 219 ft. from W of 100-ac. tract, David Ferguson Sur. ... Moving in material.

K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur. ... Rig up.

Kiltner and Easterling's No. 1 Missie Young, 230 ft. S and 250 ft. E of SW cor. of the H. Edwards Sur. in the C. Rhodes Sur. ... Derrick.

Kimsey-Trimble's No. 1 Griffith Davis, 922 ft. E of N line of Griffith Davis 119.5-ac. tract from NW cor. of same and 145 ft. at right angles, W. P. Chisum Sur. ... Shut down 3,630 ft.

Leonard Petroleum Co.'s No. 1 Register, 300 ft. from N line and 325 ft. from E line of 100-ac. lease, G. F. Penn Sur. ... Rigging up.

Charles Love et al's No. 1 J. B. Doby, 150 ft. from E and 150 ft. from S of S 6 acres of W 42 acres of 170-ac. tract, W. H. Castleberry Sur. ... Derrick.

J. K. Livingston Oil Co.'s No. 1 D. C. Johnson, 200 ft. from N and 150 ft. from E of survey, Martha Dillard Sur. ... Top Pecan Gap 2,480 ft.; shut down 2,810 ft.

Magnolia Petroleum Co.'s No. 1 L. A. Griffin, 5,225 ft. from W and 4,550 ft. from N of survey, Mary Van Winkle Sur. ... Drlg. 2,800 ft.

Mid-Kansas Oil & Gas Co.'s No. 1 James Moore et al, 150 ft. from S and E lines of most southerly SE cor. of 90-ac. lease in J. Mosley Sur. ... Drlg. plug 3,488 ft.

Pelican Natural Gas Co.'s No. 1 A. Spear and R. H. Laird, 1,650 ft. from N and 147 ft. from E lines of A. Norris Sur. ... Testing 3,623 ft.

Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur. ... Derrick.

Scheig et al's No. 1 Rube Smith, 1,100 ft. N and 300 ft. from W of tract and survey, Slaughter Sur. ... Derrick.

Selby Oil & Gas Co.'s No. 1 M. T. Cole, 150 ft. from N and 300 ft. from E lines of lease in J. M. Meador Sur. ... Coring 3,517 ft.

Selby Oil & Gas Co.'s No. 1 L. C. Ingram, 200 ft. from W line of lease in the William Pastour Sur. ... Drlg. 703 ft.

Sun Oil Co.'s No. 1 J. W. Akin, 330 ft. from N and W lines of 25.68-ac. tract in George A. Thomason Sur. ... Drlg. 2,600 ft.

The Texas Company's No. 1 Walker, 330 ft. N of S line of 213-ac. lease and 150 ft. W of the Sabine River, S. L. Davis Sur. ... Rig up.

L. C. Thorpe's No. 1 J. A. Butts, 4,850 ft. S of N and 5,300 ft. E of W line of survey, Mary Van Winkle Sur. ... Top Austin 3,450 ft.; T. D. 3,538 ft.

Tidal Oil Co.'s No. 1 Lake Divernia Fish and Game Club, 300 ft. from N and 550 ft. from W lines of tract in William G. Painter Sur. ... Rig up.

Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ... Derrick

H. M. Wages et al's No. 1 Finley and Thomas, 165 ft. from E and 150 ft. from S of 10-ac. lease, Charles H. Alexander Sur. ... Shut down 3,200 ft

L. H. Wentz Oil Co.'s No. 1 G. W. Richie, 330 ft. S of NE cor. of W 20 acres of 40-ac. tract in the William Carlton Sur. ... Location.

Woodley Petroleum Co.'s No. 1 Dyers, 200 ft. from S and 200 ft. from W of 640-ac. lease, H. Hathaway Sur. ... Derrick.

Ziegler Oil Co.'s No. 1 L. D. Campbell, 540 ft. from N and 219 ft. from E of 72½-ac. tract, David Ferguson Sur. ... Derrick.

HENDERSON COUNTY

Westside Investment Co.'s No. 1 Thornhill, 450 varas from W and 400 varas from N line of survey, James Spivey heirs Sur. ... Shut down 4,850 ft.

HOPKINS COUNTY

Thelma Wells' No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ... Derrick.

HOUSTON COUNTY

N. E. Irish's No. 1 Mrs. Byrdie Watters, 2,300 ft. W and 300 ft. S from the NE cor. of I. J. Ellis Sur. ... Rig up.

Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarza Sur. ... Shut down 476 ft.

Phillips and Phillips' No. 1 Kennedy Bros., 485 varas out of SW cor. of 100-ac. tract, Jose M. Procella Sur. ... Derrick.

LAMAR COUNTY

Indian States Oil Co.'s No. 1 W. T. Watson in Ignatius Aud Sur. ... Shut down 3,620 ft.

Puritan's No. 1 George Parr, 2,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur. ... Ready to spud.

LEON COUNTY

Cooper et al's No. 1 Lynch, 4,000 ft. from W line and 250 ft. N from the S line of Thomas H. Gardner Sur., and in 200-ac. tract ... Drlg. 1,235 ft.

LIMESTONE COUNTY

George McCamey's No. 1 B. K. Arnett, center of Blk. 13 in Casson Townsite ... Shut down 1,720 ft.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 71-ac. tract, A. S. Young heirs Sur. ... Derrick.

Shelby Oil Co.'s No. 1 Clayton Brown, located in Willis Coffey Sur. ... Coring 3,364 ft.

NACOGDOCHES COUNTY

Benedum & Trees' No. 1 Conkwright, 150 ft. from N in center of E and W lines of A. H. Conkwright 100-ac. tract, J. A. Cherino Sur. ... Shut down 5,486 ft.

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur. ..... Shut down 1,605 ft.

Burke et al's No. 1 F. R. Patterson, 6,516 varas from W and 315 varas from W line of Patterson 70-ac. tract, Joseph Las Santos Chay Sur. ..... Shut down 4,207 ft.

Churchill-Armstrong's No. 1 Max W. Hart, 2,640 ft. from N line and 2,640 ft. from S of N line of survey, George Poulett Sur. ..... Rig up.

Foreman and Weller's No. 1 Norris, 60 ft. NW of E line and 420 ft. S of road, in 72.5-ac. tract, Hossea Y. Barbo Sur. ..... Rigging up.

Foreman et al's No. 1 Robert Mattaner, NW cor. of 520-ac. tract, J. A. Cherino grant ..... Rig up.

Harwell and Scott's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 126-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ..... Shut down 2,260 ft.

Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ..... Shut down 3,920 ft.

Morgan Oil Corp.'s No. 1 R. E. Burt, center of J. L. Reed 20-ac. tract, Jose Luy De La Bega Sur. ..... Shut down 4,012 ft.

Naco Oil Co.'s No. 1 J. C. Orton, 1,000 ft. NE of highway and E of town and E of creek in Nacogdoches Townsite, A. Riola Sur. ..... Derrick.

M. A. Vaughn's No. 1 Dixon Greer, in the M. G. Herrera Sur. ..... Derrick.

Paul Vitek et al's No. 1 Hayter estate, 1,000 ft. E of Laco Creek and 300 ft. S of Nacogdoches and Jacksonville Highway, De Las Santos-Coy Sur. .... Shut down 2,035 ft.

W. W. Wheeler's No. 1 I. D. Parmley, about 155 varas N of S line and about center of E line of survey, John Kirby Sur. ..... Shut down 3,850 ft.

Sequia's No. 1 Vanover, 6,072 ft. from N and 6,636 ft. from E of Alford Oliver Sur., E Boyd E 100-ac. tract ..... Derrick.

Big Indian Oil Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarbo Sur. ..... Derrick.

L. E. Trout and Dison's No. 1 E. A. Blount, 150 ft. out of NW cor. of survey and tract, E. D. Williams Sur. ..... Derrick.

RAINS COUNTY

Berry and Hale's No. 1 Ownsby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ..... Shut down 2,096 ft.

RED RIVER COUNTY

Royle and Jondreau's No. 1 V. S. Griffin, 700 ft. from N line and 650 ft. E of W line of survey, J. C. Brown Sur. ..... Derrick.

Droppleman and Bundy's No. 1 J. W. Cunningham, 250 ft. from the S and 1,066 ft. from the E lines of B. M. Ballard Sur. ..... Rig up.

Harris & Joiner's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. ..... Shut down 1,940 ft.

Pearsons et al's No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ..... Shut down 560 ft.

RUSK COUNTY—MISCELLANEOUS

Everett Drilling Co.'s No. 1 J. E. Ross, 100 ft. W of NE cor. of J. E. Ross 69-ac. tract, 11 miles E of Henderson in Jeremiah Leath Sur. ..... Drlg. 2,595 ft.

Humble Oil & Refining Co.'s No. 1-B Hayward White, 990 ft. from N and 262 ft. from W lines of 134-ac. tract in J. M. Scott Sur. ..... Rig up.

Devonian's No. 1 Mrs. Janie Alford, 150 ft. from N and W lines of E 40-ac. Alford tract in Henry B. Dance Sur. ..... Derrick.

KILGORE AREA—RUSK COUNTY

Crider and Manley's No. 1 R. A. Metley, 600 ft. from S and 1,150 ft. from W of J. T. McDaniels Sur. .... Derrick.

Harry Elliott's No. 1 Carroll, 175 ft. from N and 200 ft. from E of 7-ac. tract, W. R. Cook Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 R. E. Holt, 330 ft. from N and E lines of 91.4-ac. tract in the J. M. Barton Sur. ..... Rig up and shut down.

Lyle and Orr's No. 1 Powers, 2,200 ft. from N and 350 ft. from E of survey, J. Womack Sur. ..... Rig up.

Moser's No. 1 Buntyn, 554 ft. from N and 326 ft. from E of survey, the most northeasterly cor. of survey, J. C. Snow Sur. ..... Spudded; shut down.

Humble Oil & Refining Co.'s No. 1 W. P. Kay, 330 ft. from N and 330 ft. from E of 42.28-ac. tract and survey, S. W. Field Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 S. G. Bagwell, 330 ft. from E and 330 ft. from S of 38-ac. tract, John Womack Sur. ..... Location.

Pelton Petroleum Co.'s No. 1 C. O. Christian, 775 ft. N and 500 ft. W of NW cor. of Meredith McCabe Sur. in the J. S. Whiteman Sur. ..... Drlg. 2,240 ft.

Mrs. Joyce Richardson, 150 ft. from N and 150 ft. from W of 10-ac. tract, Robert W. Smith Sur. ..... Derrick blown down.

Shell Petroleum Corp.'s No. 1 W. P. Moore, 1,075 ft. from N and 305 ft. from E lines of H. Wiggins Sur., Abstract 875 ..... Reaming to set 6-in. csg.; top sand 3,713 ft.

Southern Crude Oil Pur. Co.'s No. 1 Rena Christian, 330 ft. from E and 150 ft. from S of lease, W. R. Cooke Sur. ..... Top sand 3,668 ft.; T. D. 3,674 ft.; preparing to run csg.

State Production Co.'s No. 1 Gipson, 630 ft. from N and 175 ft. from E lines of tract in T. Lloyd Sur.... Rig up.

JOINER POOL—RUSK COUNTY

T. C. Adams' No. 1 J. E. Arnold, 150 ft. from S and W lines of 26-ac. tract in M. J. Prue Sur. ..... Drlg. plug.

Armstrong and Pitt's No. 1 Cooper, 2,150 ft. from W and 166 ft. from N of survey ..... Top sand 3,549 ft.; set 6⅝-in. csg. 3,520 ft.; preparing to test.

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ..... Derrick.

Bullock's No. 1 Alford, 1,300 ft. from S and 150 ft. from W of survey, T. J. Moore Sur. ..... Shut down 2,010 ft.

Campbell Oil Co.'s No. 1 Compton, 600 ft. from N and W line and Simon Del Rio Sur., 1¼ miles NW of Minden ..... Derrick.

Cap Rock Oil Co.'s No. 1 Burton, 1,100 ft. E of W line and 520 ft. S of N line in SE cor. of 62½-ac. tract, Juan Jose Yarbo Sur. ..... Spudding.

Dunnigan and Holt's No. 1 Cansler, 150 ft. N and W of SW cor. Gabe McIlroy 16.3-ac. tract in F. Cordova Sur. ..... Derrick.

Elzy and Tautenham's No. 1 Deason, 1,300 ft. from W and 3,700 ft. from S of survey, Juan Ximenes Sur. .. Shut down 2,310 ft.

Elzy Drlg. Co.'s No. 1 Frederick, 150 ft. from S and 603 ft. from W of Frederick 90-ac. tract, Juan Ximenes Sur. ..... Derrick.

Gulf Production Co.'s No. 1 W. L. Murphy, 150 ft. from N and W lines of 79-ac. tract in F. Cordova Sur. ..... Top sand 3,774 ft.; T. D. 3,787 ft.; running csg.

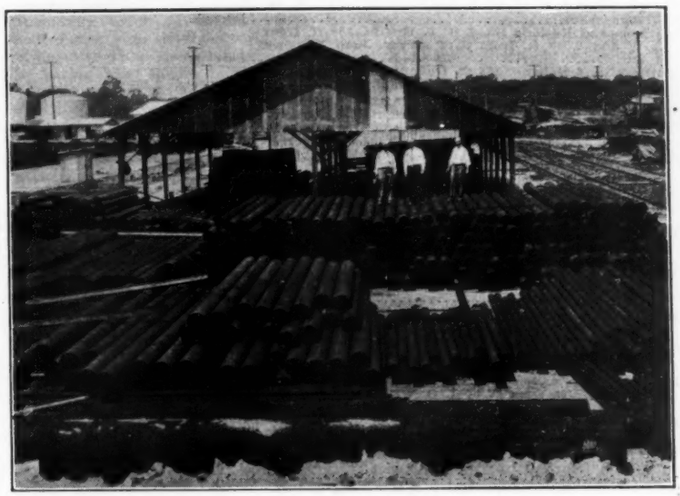
H. L. Hunt's No. 1 A. Holt, 162 ft. from N and 237 ft. from E of A. Holt 60-ac. tract, S. P. Hollingsworth Sur. ..... Top Austin 3,614 ft.; T. D. 3,682 ft.

C. C. Julian's No. 1 Motley, 780 ft. from N and 1,673 ft. from W of survey, J. T. McDaniels Sur. ..... Set csg.; T. D. 191 ft.

Kimbrough et al's No. 1 Weatherby, 300 ft. from N and 300 ft. from E, Robert Martin Sur. ..... Shut down 3,603 ft.

Leonard Petroleum Co.'s No. 1 Sanger Bros., 290 ft. from N and 350 ft. from W of survey, J. P. Meredith Sur. ..... Coring 3,709 ft.

BIG SAVINGS ON PIPE



2,000 Tons Oil Well Casing and Line Pipe

This is new pipe made by National Tube Company and Jones & Laughlin Steel Corp. that has been salvaged from a sunken ship. Threads and couplings are in perfect shape—entire pipe is oiled—looks like new. Offered at big reductions from stock at Municipal Docks, Jacksonville, Fla.

O.D. SEAMLESS CASING (Lengths, 21' to 39')	Ready for Shipment
8⅝"—Weight, 44 lb. per ft.	5,548'
9⅝"—Weight, 48 lb. per ft.	9,420'
5 "—Weight, 15 lb. per ft.	5,681'

O.D. LINE PIPE Beveled Ends Ready for Welding (Lengths, 25' to 37')	Ready for Shipment
6 "—Weight, 19 lb. per ft.	376'
8 "—Weight, 25 lb. per ft.	1,739'
10¾"—Weight, 40 lb. per ft.	4,271'
12 "—Weight, 45 lb. per ft.	100'
16 "—Weight, 75 lb. per ft.	102'
24 "—Weight, 100 lb. per ft.	77'

WRITE OR WIRE FOR PRICES

PIPE TRADING CORP.

800 East 18th St. Kansas City, Mo.

LONG DISTANCE PHONE, GRand 0844

Luling Oil & Gas Co.'s No. 1 Alford, 800 ft. from N and 4,820 ft. from E lines of the I. G. Parker Sur. ..... Drlg. 3,548 ft.; top Austin 3,480 ft.

Ray Martin et al's No. 1 Russell, 600 ft. from N and 150 ft. from E lines of lease in T. J. Martin Sur. ..... Drlg. 3,713 ft.

Marr et al's No. 1 Lowns, 1,200 ft. from most westerly E line and 3,150 ft. from S line of survey, W. G. Tuttle Sur. ..... Derrick.

Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ..... Shut down 3,270 ft.

H. C. McBride's No. 1 Sue Hale, 150 ft. from S and 150 ft. from W of Sue Hale 88-ac. tract, John Darley Sur. ..... Set 12½-in. csg. 212 ft.

Frank Melat's No. 1 Newton Orr, 300 ft. S of N line of 202½-ac. tract, William Tippett Sur. ..... Shut down 2,780 ft.

Nat Saddler's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ..... Shut down 1,985 ft.

Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. ..... Rig blew down.

Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. ..... Location.

Rowe et al's No. 1 Maxwell, 855 ft. from E and 237 ft. from S of B. F. Maxwell 59-ac. tract, R. H. Pinney Sur. ..... Derrick.

Shaheen and Keeler's No. 1 H. L. Griffin, 550 ft. from W and 2,000 ft. from S of survey, Juan Ximenes Sur. ..... Derrick.

Suttles' No. 2 Holland, 156 ft. from N and 152 ft. from W of Holland 41.7-ac. tract, M. J. Prue Sur. ..... Shut down 2,300 ft.

SMITH COUNTY

Adams and Berry's No. 1 T. O. Wright, 150 ft. from N line and 150 ft. from E line of Juan Vargus Sur. ..... Set 10-in. csg. 118 ft.

Bailey Gaunce et al's No. 1 S. S. Cook, 150 ft. from S and 150 ft. from W of S. S. Cook 20-ac. tract in 159-ac. tract, Juan Vargus Sur. ..... Shut down 2,350 ft.

Big Indian Oil Co.'s No. 1 Holland, 2,384 ft. from N and 1,446 ft. from E line of survey, Thomas Allen Sur. ..... Drlg. 3,770 ft.

G. B. Bunte, trustee's No. 1 A. S. Jarvis, 150 ft. from S and 150 ft. from W of 247-ac. tract, Juan Vargus Sur. ..... Rig up.

Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 320-ac. tract, Calloway Dean Sur. ..... Derrick.

Roy L. Carter's No. 1 T. O. Wright, 1,445 ft. from N and 183 ft. from E of survey, Juan Vargus Sur. .... Top sand 3,656 ft.; drlg. 3,666 ft.

Cotton Belt Oil Co.'s No. 1 C. S. Jackson, 500 ft. from N and 500 ft. from W of 39.88-ac. tract, Henry Mickleborough Sur. ..... Shut down 3,277 ft.

Deason Oil Co.'s No. 1 T. O. Wright, 1,440 ft. from N and 250 ft. from W of T. O. Wright 86-ac. tract, Juan Vargus Sur. ..... Derrick.

East Texas Refining Co.'s No. 1 Colored Methodist Church, James Jordan Sur. ..... Drlg. 1,830 ft.

Gulf Production Co.'s No. 1 Jack Wiley, 150 ft. from S line and 250 ft. from E line of James Jordan Sur. ..... Derrick.

Hancock and McCarthey's No. 1 J. C. Cross, 200 ft. from E of road and 200 ft. N of S line of survey on a 13-ac. tract, Burbridge Sur. ..... Derrick.

John Hoosier et al's No. 1 W. T. Roberts et al, 300 ft. from N and 277 ft. from W lines of 13½ acres in the Juan Vargus Sur. ..... Set 10-in. csg. 145 ft.

Imperator Oil Co.'s No. 1 I. M. Green, 140 ft. from S and 165 ft. from E line of Green 86.5-ac. tract, NW of Overton and N and a little E of Big Indian No. 1 Holland ..... Shut down 2,210 ft.

Joiner et al's No. 1 W. W. Wright, 847.5 varas from E and 647 varas from S of NW Wright 225-ac. tract, Van Sickle Sur. ..... Shut down 4,220 ft.

Lawrence E. Ketch's No. 1 T. O. Wright, 700 ft. from E and 750 ft. from N of survey, Juan Vargus Sur. ..... Top sand 3,696 ft.; T. D. 3,735 ft.

Magnolia Petroleum Co.'s No. 4 J. R. Wright, 1,458 ft. from N and 250 ft. from E of 87.9-ac. tract or lease, Juan Vargus Sur. ..... Top Austin chalk 3,495 ft.; set 6⅝-in. at 3,667 ft.

Magnolia Petroleum Co.'s No. 3 Loosier, 300 ft. from S and 1,000 ft. from W lines of 126.7-ac. tract in J. Vargus Sur. ..... Set 10-in. csg. 122 ft.

Magnolia Petroleum Co.'s No. 5 J. R. Knight, 150 ft. from N and 900 ft. from W of J. R. Wright 78-ac. tract, Juan Vargus Sur. ..... Set 6⅝-in. csg. 3,665 ft.

Magnolia Petroleum Co.'s No. 6 J. R. Wright, 2,400 ft. from E and 1,800 ft. from N of survey, Juan Vargus Sur. ..... Derrick.

Magnolia Petroleum Co.'s No. 6 Juan Vargus Sur., 1,852 ft. from S line and 477 ft. from W line of 87-ac. tract ..... Derrick.

Mid-Kansas Oil & Gas Co.'s No. 1 Thompson, 150 ft. from S and 150 ft. from W of 100-ac. lease, Isaac Moore Sur. ..... Rig up.

McCarthey and Hancock's No. 1 Nellie Taylor, 250 ft. out of SW cor. of 73-ac. Taylor tract, F. M. Taylor Sur. ..... Derrick.

McMillan's No. 1 Wright, 794 ft. from N and 171 ft. from W of T. C. Wright 86-ac. tract, Juan Vargus Sur. ..... Derrick.

Morrison's No. 1 I. Roy, 330 ft. N and E from SW cor. of 87-ac. tract in Henry Cools Sur. ..... Shut down 3,340 ft.

M. M. Rowand et al's No. 1 Gibbons, 1,800 varas from W and 260 varas S of river (which is N line of survey), J. M. Garcia Sur. ..... Coring 3,210 ft.

Ruffin and Williams' No. 1 Hamp Florence, 700 ft. from N and 200 ft. from E of 192.5-ac. tract, Barnes Clark Sur. ..... Coring 3,965 ft.

Sinclair Oil & Gas Co.'s No. 1 Mayfield, 2,194 ft. from N and 3,625 ft. from W of 376-ac. Mayfield lease, James Jordan Sur. ..... Top Austin chalk 3,660 ft.; top sand 3,660 ft.

Sinclair Oil & Gas Co.'s No. 2-A Jarvis, 275 ft. from E and 203 ft. from S lines of Jarvis "A" lease in Juan Vargus Sur. ..... Top sand 3,674 ft.; running csg.; T. D. 3,679 ft.

Sinclair Oil & Gas Co.'s No. 3-A Jarvis, 1,333 ft. from E and 1,388 ft. from S of "A" lease, Juan Vargus Sur. ..... Waiting on connection 3,672 ft.

Sinclair Oil & Gas Co.'s No. 3-A Mayfield, 2,111 ft. from N and 2,396 ft. from E of survey, James Jordan Sur. ..... Top Austin 3,622 ft.; top sand 3,786 ft.; set 6⅝-in. csg. 3,769 ft.

Sinclair Oil & Gas Co.'s No. 4-B Jarvis, 2,333 ft. from S line and 778 ft. from E line of "B" lease, Juan Vargus Sur. ..... Derrick.

Sinclair Oil & Gas Co.'s No. 1-C Jarvis, 660 ft. from N line and 962 ft. from E line of tract, M. D. Los Santos Coy Sur. ..... Derrick.

Sinclair Oil & Gas Co.'s No. 2 R. L. Wright, 1,348 ft. from N line and 477 ft. from E line of 107.2-ac. lease in Juan Vargus Sur. ..... Derrick.

M. T. Smith & Son's No. 1 T. O. Wright, center of 10-ac. Wiley lease in Juan Vargus Sur. ..... Rig up and shut down.

Sun Oil Co.'s No. 1-B Ritch, 300 ft. from N and 281 ft. from W lines of 54-ac. tract in Juan Vargus Sur. ..... Drlg. 3,523 ft.

Sun Oil Co.'s No. 2 J. B. Henson, 200 ft. from N line and 285 ft. from W line of 214-ac. tract, Juan Vargus Sur. ..... Derrick.

Sun Oil Co.'s No. 2 J. H. Lane, 580 ft. W of No. 1 Samuel Dexter Sur. ..... Derrick.

The Texas Company's No. 3 Blackwell, 330 ft. from S and E lines of 100-ac. tract in James Jordan Sur. ..... Location.

The Texas Company's No. 1 J. W. Wilson, 300 ft. from N and 250 ft. from W lines of Wilson 125-ac. tract in David Collins Sur. ..... Drlg. 3,230 ft.

The Texas Company's No. 2 J. W. Wilson, 527 ft. from most easterly W line and 350 ft. N of most southerly S line D. Collins Sur. ..... Derrick.

Mrs. S. O. Thompson's No. 1 S. S. Cooke, center of 5-ac. tract and lease in James Jordan Sur. ..... Set 10-in. csg. 124 ft.

Vitex' No. 1 Irion, 150 ft. from S and E lines of 50-ac. tract in Mary Hughes Sur. ..... Set 12½-in. csg. 103 ft.

TITUS COUNTY

H. V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ..... Shut down 1,064 ft.

UPSHUR COUNTY

Barkley et al's No. 1 J. B. Webb, 330 ft. from SE cor. of 31-ac. lease on 76-ac. tract, G. W. Hooper Sur. .... Drlg. 1,410 ft.

Brennan and Wood's No. 1 Robertson, center of Robertson 41-ac. tract, Ira Stephenson Sur. ..... Shut down 3,691 ft.

Cockrell et al's No. 1 C. A. Lee, 150 ft. from S and 150 ft. E of 26½-ac. tract, W. L. Palmer Sur. ..... Derrick.

Callahan et al's No. 1 Lee R. Kay, 660 ft. from N and E lines of Charles O'Neal Sur. ..... Derrick.

Calhoun et al's No. 1 J. R. Penn, 265 ft. from S line and E line of Penn 104-ac. tract, Joseph Manning Sur. ..... Derrick.

Compton and Letts' No. 1 J. C. Wilsford, 300 ft. from E line and 2,700 ft. from S line of survey, L. Lomzolias Sur. ..... Derrick.

Cole and Butler's No. 1 D. F. Guest, 300 ft. out of NE cor. of Guest 129-ac. tract and survey ..... Derrick.

Dumas et al's No. 1 A. O. Phillips, 150 ft. from N and 150 ft. from E of W 25.2-ac. of 75-ac. tract, S. Harrell Sur. ..... Skid rig.

A. H. Farver et al's No. 1 J. W. Free, 1,000 ft. N of SE cor. A. D. Porter tract and 463 ft. E at right angles, G. W. Hooper Sur. ..... Top Austin 3,598 ft.; oil sand 3,660-77 ft.; preparing to test.

Gillett and Tarr's No. 1 Winnie and Wofford, 150 ft. from N and 150 ft. from E lines of 80-ac. tract, John L. Lowery Sur. ..... Coring shale 3,740 ft.

Home Oil Co.'s No. 1 F. D. Futrell, 150 ft. out of SW cor. and 520 ft. from E and 400 ft. from S line of 7.6-ac. tract, A. Lumbrara Sur., south of Gilmer ..... Shut down 2,380 ft.

Humble Oil & Refining Co.'s No. 1 T. D. Smith, 1,956 ft. from S line and 330 ft. from W line of lease, Hayden Edwards Sur. ..... Derrick.

A. D. King's No. 1 Lloyd, 156 ft. from N line of survey and 288 ft. from E line of 4-ac. tract, D. Sanches Sur. ..... Derrick.

McMahon and McCullough's No. 1 E. H. Hamilton, 200 ft. from E and 150 ft. from S of 88-ac. tract, M. Chandler Sur. ..... Top Austin chalk 3,697 ft.; base 3,742 ft.; coring 3,750 ft.

McPhail and Smith's No. 1 Kay, 660 ft. from S and 660 ft. from W line of J. Elliott Sur., 1½ miles S of Big Sandy ..... Bailed dry; T. D. 3,655 ft.

Meade Bros.' No. 1 Woofard, 2,400 ft. from SE line and 1,250 ft. from NW line of survey, J. L. Lowery Sur. ..... Location.

G. P. Mitcham's No. 1 J. B. Bland, 165 ft. from E and 650 ft. from S of 62½-ac. tract and 15-ac. lease, G. W. Hooper Sur. ..... Rigging up.

W. H. Peckham's No. 1 J. B. Webb, 450 ft. from S line and 1,450 ft. from E line of tract, G. W. Hooper Sur. ..... Derrick.

Rogers and Rogers' No. 1 Walker, 300 ft. W of CEL of 28.1-ac. tract, McGee Sur. ..... Drlg. 3,585 ft.

J. R. Smith's No. 1 J. B. Webb, 200 ft. N and 489 ft. W of SE cor. of W 20 acres of 71-ac. tract, G. W. Hooper Sur. ..... Derrick.

Sorrels & Duffey's No. 1 J. W. Wooden, 200 ft. from E and 200 ft. S of survey, Isham Williams Sur. .... Shut down 1,445 ft.

Sun Oil Co.'s No. 1 Vida Lee Loden, 200 ft. from N and 290 ft. from S and 150 ft. from W lines of 27.3-ac. tract in G. W. Hooper Sur. ..... Set 6⅝-in. 3,675 ft.

The Texas Company's No. 1 H. L. Phillips, 150 ft. out of SW cor. of 18.65-ac. tract, H. A. Holit Sur. ..... Derrick.

A. A. Trammell's No. 1 O. M. Victory, 150 ft. from E and 150 ft. from S of SW 100 acres of survey, E. A. J. Evans Sur. ..... Shut down 3,558 ft.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. Cadena Sur. ..... Spudded and shut down 300 ft.

Hart Petroleum Corp.'s No. 1 M. L. Cox, 1,785 ft. N of S line and 524 ft. E of W line of Cox 300-ac. tract in Nugent Headright Sur. ..... Shut down 2,085 ft.

H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van ..... Shut down 3,098 ft.

Joiner et al's No. 1 J. S. Meeks, 330 ft. out of the NE cor. of the 330-ac. tract, A. Ducher Sur. ..... Shut down 3,840 ft.

Humble Oil & Refining Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur. ..... Temp. abnd. 2,987 ft.

Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... Shut down 2,590 ft.

Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ..... Shut down 1,975 ft.

W. P. Palmer et al's No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. ..... Shut down 3,000 ft.

W. A. Phillips et al's No. 1 Morris, 1,050 ft. S of N line and 350 ft. W of E line of center west of Norris 160-ac. tract in the C. L. Morris Headright Sur. ..... Shut down 3,075 ft.

Puro Oil Co.'s No. 1 B. W. Camper, 600 ft. S of N line and 200 ft. E of W line of Camper 55-ac. lease, John Walling Sur. ..... Location.

Pure Oil Co.'s No. 2 J. M. Martin, 675 ft. W of E lines and 225 ft. S of N line of lease, Mund Gross Sur... Drlg. 1,800 ft.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. .... Shut down 2,530 ft.

WOOD COUNTY

Brennan and Wood's No. 1 L. W. Mings, 300 ft. from NW cor. of survey and tract, Moses Stripling Sur... Derrick.

Loche and Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. .. Shut down 2,008 ft.

Deep Rock Oil Co.'s No. 1 Maud Smith, center of Maud Smith S 40-ac. tract, L. Johnson Sur. ..... Shut down 4,185 ft.

Main Holding Co. and Thelma Wells' No. 1 Stewart, 1,938 ft. from NE and 2,898 ft. from E line of survey, E. Rehorse Sur. ..... Shut down 465 ft.

Vitek Oil Co.'s No. 1 Rosa Bogel, 250 ft. from N and 500 ft. from W of survey, Sarah English Sur. ..... Shut down 2,760 ft.

M. O. Walmer Oil Co.'s No. 1 J. A. Ivey, center of 57-ac. tract, 2 miles NE of Mineola, A. Hamilton Sur... Coring 4,007 ft.

Wood County Oil & Gas Co.'s No. 1 Ivy Davis, 180 ft. from S line of 160-ac. tract, Sarah McDonald Sur. .. Location.

Time Saved May Be Turned Into Money

Distributor of Oils and Gasoline by Truck Often Suffers Serious Losses as Result of Conditions That Can Be Corrected

By Thomas F. Smiley

Loss of five minutes' time in loading a truck at a bulk station as a result of poor arrangement of loading racks or an insufficient number of them may not seem anything to worry about, but when this five minutes is multiplied by the number of trucks which the distributor operates and then is multiplied again by the number of times each of these trucks must undergo this five minutes loss, the total may cause concern. When the same sort of calculation is made with reference to other conditions that rob the business of precious minutes and hours, the resultant figures are likely to be fairly astounding.

Many kinds of needless time losses suffered in the delivery of oils and gasolines by truck were revealed in a country-wide survey conducted by the General Motors Truck Co., and in its published report of this survey the remedy for each kind of loss is pointed out.

It should be relatively easy for every distributor to keep careful control of time losses at the bulk station, says the report of the General Motors Truck Co. survey, from which the facts given here were taken, but the survey shows clearly that time lost before, during and after loading—when the truck is at the bulk station—accounts for an alarmingly high percentage of lost time for the average operator. The time losses at the bulk station generally arise in one of three ways: (1) Poor yard layout, (2) poor loading facilities or (3) careless methods of dispatch.

Layout and Arrangement

In many cases, the layout and arrangement of the bulk station are responsible in some measure for these time losses. For example, several stations were observed in which yard space was so limited that trucks were forced to do considerable maneuvering while in the yard. And in those yards, it was seldom possible for more than one truck to go through any one loading operation at a time. Again, loading racks were frequently poorly arranged or insufficient in number for loading demands. And the same defect of insufficient loading space frequently was observed at warehouse platforms where oils and greases were loaded. In at least four stations, congestion at the warehouse was caused in part by the fact that empty drums were stacked just outside the warehouse in locations which prevented free movement of trucks.

At some bulk stations, where space is limited, it is difficult or even impractical to remedy these physical circumstances which slow up loading procedure at the station. In many other cases, however, slight alterations in yard layout, in loading equipment, or in storage facilities can accomplish great time savings on a fleet of several trucks. For example, by adding two loading racks, moving a tool house to speed up yard traffic, and changing the location of his empty drums, one operator was able to save an average of 24 minutes a day on each of 17 trucks operating out of his bulk station—a total of six hours a day! Time savings as great as these are worth careful study and even considerable expense to effect necessary changes.

More Rapid Dispatch Needed

An even greater source of lost time at most bulk stations arises from poor handling of dispatch and loading by drivers and station personnel. Deliveries that are on an order basis rather than a "keep full" basis—as is frequently the case with lubricating oil, grease, fuel oil and kerosene business—demand that the driver receive individual orders for each load before proceeding to the loading racks or warehouse. Again, in many stations, the driver is required to go to the office and fill out or turn in a trip report after each run. Delays from these sources are frequent and costly. Drivers are inclined to stop and chat with other drivers or with office employes; orders frequently are not ready or are not routed properly so that they can be turned over to the driver at once; reports, which should have been filled out on the route, are filled out in the office while the trucks stand idle waiting to be loaded.

If the number of trucks is large enough, a dispatcher should be employed whose sole duty is to handle all orders, route trucks on special runs, group special orders for economical delivery, and receive and check reports on incoming trucks.

Whether or not a dispatcher is provided, loading instructions and order slips should be handled in such a way as to avoid delays. One method is to send order instructions direct to the yard supervisor, or to yard men at storage tanks or in the warehouse, to avoid extra trips to the office. This method has the added advantage of speeding up the assembly of mixed loads in the warehouse, so that loads will be ready when the truck arrives.

Distributor Should Study His Yard

Methods of loading, dispatching and reporting vary in almost every bulk station, depending on the operator's own practices and on the type of routes and loads handled. In almost all stations observed, however, time losses at the bulk plant were frequent and costly. Every distributor should study these losses in his own yard with a view to speeding up yard traffic, avoiding waiting and delays at loading racks and warehouse, simplifying and speeding up dispatch procedure, and avoiding lost minutes in turning in trip reports.

Time losses on the truck route are not as easily controlled as losses at the bulk station. However, the survey revealed four important sources of lost time on routes which can be remedied as least partially. These losses and suggested remedies for them follow:

1. Poor routing in respect to mileage, roads and traffic. Territories served by the distributor should be carefully mapped. Stop lights, condition of streets, volume of traffic, and other factors affecting speed of delivery should be carefully noted, and drivers should be given instructions accordingly. An eastern operator, for example, reduced the average time of one route from 2 hours and 40 minutes to 2 hours and 20 minutes—a saving of 12 per cent—by rearranging routes so that the driver could take advantage of right turns allowed on red lights, instead of having to wait for lights to change.

Poor Unloading Facilities

2. Poor unloading facilities at the point of delivery. These include garages which will not permit trucks to enter for unloading, cramped quarters for large truck deliveries, poor location of fill pipes for underground tanks, and so on. These situations are hard to overcome. If the customer demands that loads be bucketed out when there is really no imperative need for this type of unloading, careful cultivation and effort on the part of salesmen and drivers can frequently overcome objections to direct unloading. Salesmen should always be on the lookout, of course, for opportunities to correct poor receiving facilities. Company owned retail stations should be carefully planned to prevent delays and give maximum speed in unloading.

3. Slowness, thoughtlessness or carelessness on the part of customers. Drivers should report these customers, and salesmen should be instructed to appeal to them to assist more rapid delivery, in the interest of better service to them and to other customers. It should be a part of the salesman's regular duties to encourage better delivery service by stimulating customers to speed up the unloading process as much as possible.

4. "Not at home" stops, "no cash," "credit doubtful," etc. These situations frequently occur on peddler routes or routes devoted to small deliveries to small customers. Time losses can be eliminated by having order takers on phoned orders tell the customer the approximate hour of delivery and the C.O.D. charges. C.O.D. deliveries should be marked with symbols by the credit department, for example: "C.O.D." for no credit under any circumstances; "C.O.D. phone," for doubtful credits when the driver should phone in before granting credit; and "O.K." if credit can be granted on the C.O.D.

Time Savings Mount Rapidly

Time savings by reduction of shop time, by better handling of trucks at the bulk station, and by systematic effort to reduce delays at the point of delivery, will quickly mount up to a total of many hours, especially if the distributor is operating several trucks. A few minutes saved, here and there, may seem to be slow progress with little chance for applicable savings. But with concentrated effort along each of the lines suggested above, almost every distributor of petroleum products can reduce these losses by many hours and even days in the course of a few months. And time saved can be translated immediately into dollars and cents savings and increased profits.

In a 10-hour working day, five minutes saved out of each hour means that each truck will save approximately 50 minutes out of each working day, two working days out of each month, one work-day month out of each year. This saving, in a fleet of 12 trucks, amounts to the working time of one truck.

Time saving is not an end in itself. It yields the truck operator consistent profits only when definite steps are taken to translate time savings into dollars and cents savings. It is true, however, that some savings will arise almost automatically from the fact that idle time and delays, of the kind discussed, are eliminated. For example: Systematic effort to reduce idle time in the shop will produce a direct saving in repair costs. Time savings during peak, busy seasons will reduce the amount of costly overtime operation. Time saving means more prompt, efficient delivery of customer's orders.

But with the average distributor, who operates several trucks, time savings can be turned to even more valuable results than these, in two ways: (1) By increasing the work output of each truck operated and thereby making it possible to handle the same volume of sales with fewer trucks. (2) By using the extra truck time and capacity for sound sales expansion.

Using Time Saved in Lower Costs

The first of these methods of making time savings pay profits is most practical in large fleet operations where the combined time savings of several trucks will make it possible to eliminate one or more trucks from the fleet. At first glance, it may seem highly improbable that such savings can be made. But a time saving of five minutes out of each hour for a fleet of 12 trucks means a total saving equivalent to the time of one truck, on the basis of a 10-hour working day. There were few distributor operations observed during this survey in which such savings were not both possible and practical.

Time saved in the repair shop, moreover, means less demand for reserve truck equipment for emergency use when regular trucks are in the shop. And the reserve truck fleet, with its costly overhead and small actual earning time, is a part of the truck operation which should be closely pruned to a necessary minimum.

Obviously, savings from eliminating excess truck capacity, however, are more in the nature of limiting present volume and territorial coverage than they are constructive efforts to increase both volume and profits. The average operator can make far greater profits from time savings by following the second of the two steps listed above.

Using Time Saved for Trade Expansion

The operator who has extra truck time and capacity, through systematic time savings in his present truck operation, can make the greatest possible gain by using time saved for profitable sales expansion. Using time saved for this purpose provides two profits: (1) Lowered cost of delivering his present volume; and (2) a clear profit on increased business handled with his present fleet.

A large western refiner, distributing from stations in 10 districts, started a time-saving study in January, 1930. The following is the amazing result of operating changes effected by June, in spite of slightly increased volume in 1930:

District number	No. of trucks operated—June, 1929	No. of trucks operated—June, 1930	% Decrease trucks used	% Decrease total cost
1	41	15	63	68
2	91	82	10	13
3	51	32	39	38
4	123	82	33	34
5	111	77	31	36
6	30	30	..	..
7	98	61	38	39
8	20	10	50	55
9	47	29	38	41
10	40	30	25	28
Total	652	448	31	35

Since time savings enable the distributor to deliver his present volume of business without working his trucks to full capacity, using the excess truck time for purposes of sales expansion is the soundest kind of sales development. In general, there are three ways in which this excess time can be used most profitably: (1) To deliver to new, profitable customers on present routes, (2) to expand present routes over larger areas, and (3) to provide better service to profitable customers.

Whenever the distributor, through time savings, finds that his trucks can handle additional deliveries without demanding overtime work on the part of drivers, he should concentrate the effort of his sales force on territories served by the trucks in question, with a view to creating sufficient new business to absorb the excess time. If new customers are sold within the limits of present delivery routes, the only additional cost of serving those customers will be the sales expense involved. Deliveries, which are made on time which would otherwise be idle and which do not require additional truck mileage, may quite logically be called "costless deliveries."

Reaching Out for Greater Territory

Practically every distributor who keeps accurate delivery costs has established a definite limit to his delivery area on the basis of the cost of delivery. Delivery costs can quickly eat up profits on long deliveries. Once the bulk station is lo-

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Manufacture of Natural Gasoline

Well Shutdowns Lower Output of Natural Gasoline

The shut down of wells in several sections of the Mid-Continent has already been reflected in the production of natural gasoline at plants located in those areas and if the shut-down movement spreads could easily bring a shortage according to information obtained from representative manufacturers during the past week. The decline has been a factor in the recent price improvement in the Mid-Continent natural gasoline market.

The decline in the production up to the present time has largely been confined to the Oklahoma City Field. In that area several producers, including some of the larger operators, have shut in their wells and this has reduced the quantity of casinghead gas available at the gasoline plants. The Indian Territory Illuminating Oil Co., which is the largest producer in the field, owns four plants located in the field and has interests in two other plants. The company's production, which is normally around 80,000 gallons daily, has been reduced to 40,000 gallons. The company has shut down all its wells except those which have offsets.

The production of the two plants of the Phillips Petroleum Co. has also been reduced approximately 50 per cent, brought about by the shutting down of some of its wells and those from which it purchases casinghead. The two plants previous to the time of the shut-down movement were producing 65,000 gallons of natural gasoline. The plant of the Wirt Franklin interests was completely shut down for a time due to the fact that no gas was available. Other manufacturers in the Oklahoma City Field reported a normal output last week. It was expected that the production of the plant of the Sinclair Oil & Gas Co. would show a decline this week. The Sinclair company is reported to have produced all the crude oil allowed for July from its wells and the wells are to be shut down for the remainder of the month. The plant normally produces about 20,000 gallons of natural gasoline daily. Some of the gas is obtained from leases other than those owned by the Sinclair company.

Some of the manufacturers operating plants in the older fields of Oklahoma, Kansas and North Texas, including the Panhandle, also reported decreases brought about by shut downs or curtailment programs among the producers. These declines however were relatively small up to the first of the week.

Declines in Old Fields

Before the recent shut-down movement got under way, there were gradual production declines in many of the old plants of the Mid-Continent. The casinghead gas available at the older wells usually shows a consistent decline and unless new wells are drilled this loss is not offset with gas from new wells. Due to the low prices which have prevailed for crude oil for over a year most producers in the old fields have stopped drilling although there are many proven locations to be developed.

The low crude oil prices also tend to reduce the casinghead gas production due to the fact that the owners of the wells do not attempt to obtain the maximum production. The policy of many pro-

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CARBON FRANCHISE ASKED

CHATHAM, Ontario, July 27.—The Carbon Exploration Co. of Carbon, Alberta, is applying to the council of that village for a franchise to sell and distribute natural gas locally. The company some time ago got gas production in one well and is planning additional drilling.

DECLINE IN NATURAL GASOLINE OUTPUT LESS THAN STRAIGHTRUN

Although natural gasoline utilization by refineries has declined this year when compared to last year, it has shown a smaller decrease than straightrun gasoline.

Government data for the first five months of this year show that refiners in United States used 15,384,000 bbls. of natural gasoline at their refineries. The first five months of 1930 refiners used 16,988,000 bbls. of natural gasoline so that the decrease this year totals 1,604,000 bbls. or approximately 10 per cent.

The production of straightrun gasoline (gasoline skimmed from crude oil by distillation at atmospheric temperature) the first five months of this year totaled 87,382,000 bbls., a decrease of 10,895,000 bbls., or approximately 11 per cent. For the first five months of this year, the natural gasoline used by refiners represented 8.9 per cent of the total refinery production. For the same period in 1930, the percentage of natural gasoline was 9.3 per cent. Straightrun gasoline represented 54 per cent of the total the first five months of last year and this year 51.5 per cent. The latter figures reflect a continuance of a trend in which straightrun gasoline has slumped from its position of 100 per cent of the total gasoline production 20 years ago to a point where it now represents approximately one-half of the total.

The government data also show the increasing importance of cracked gasoline in refinery operations. This is significant not only to the straightrun end of refinery operations but also to natural gasoline manufacturers. In general, cracked gasoline is more volatile than straightrun gasoline and it is conceded by natural gasoline manufacturers, that due to this fact many refiners have been able to reduce their purchases of natural gasoline. With a large production of cracked gasoline these refiners have sufficient volatile material so that they require little if any natural gasoline for blending purposes.

Despite the decrease in total refinery production of gasoline, cracked gasoline increased from 66,436,000 bbls. the first five months of 1930 to 69,471,000 bbls. the first five months of this year. This gain of 3,035,000, or 4.5 per cent, is less than the average of previous years. Percentagely, cracked gasoline represented 40.4 per cent of the total refinery gasoline production the first five months of this year, an increase over the 36.5 per cent for the first five months of last year.

Use of Natural Gasoline

A comparison of the utilization of natural gasoline by the several refining areas this year and last shows, in general, that the interior areas increased their purchases of natural gasoline this year while the coastal areas bought less. The large refiners along the East Coast decreased their purchases from 1,072,000 bbls. the first five months of last year to 770,000 bbls. for the same period this year, a decrease of approximately 30 per cent.

In the Gulf Coast area the same situation obtained. Coastal Texas refiners for the period under comparison bought 3,629,000 bbls. last year and 2,786,000 bbls. this year. The Louisiana coastal refinery purchases decreased from 1,441,000 bbls. last year to 855,000 bbls. this year.

Two explanations are offered for this relative situation, both of which probably contributed to the development. In the first place the East Coast and Gulf Coast refiners furnish the bulk of the gasoline exported and these exports have decreased approximately 25 per cent this year. Several refiners in these areas use considerable natural gasoline for blending stock in making up export shipments. With these shipments on the decline they have reduced their purchases of Mid-Continent and California naturals. In this connection it is also worthy of note that the production of cracked gasoline along the East Coast jumped from 12,961,000 bbls. the first five months of 1930 to 14,397,000 bbls. for the same period this year. For the same periods the Texas Gulf Coast area cracked gasoline production jumped from 13,449,000 bbls. to 15,071,000 bbls. This increased production of cracked gasoline no doubt enabled several refiners to reduce their purchases of natural gasoline.

Transportation Costs

The other reason for the shift in natural gasoline has to do with transportation costs. With refinery gasoline prices at the lowest levels in years, the rail transportation costs from the natural gasoline plants to the refineries were a more important item in the demand for natural gasoline than ever before. For a considerable period, the transportation cost per gallon from the Mid-Continent to the Gulf coast was as much or more

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REFINERY GASOLINE PRODUCTION
(Thousands of barrels)

	Total production		Natural gasoline used	
	1931	1930	1931	1930
East Coast	27,553	26,323	770	1,072
Appalachian	6,843	6,480	224	216
Indiana, Illinois, Kentucky	25,597	28,399	1,156	1,144
Oklahoma, Kansas, Missouri	24,650	26,292	2,157	2,040
Inland Texas	12,377	11,217	1,427	1,087
North Louisiana-Arkansas	3,344	3,597	498	626
Coastal Texas	30,400	30,760	2,786	3,629
Coastal Louisiana	6,973	9,127	855	1,441
Rocky Mountains	4,923	5,859	514	608
Total east of California	142,659	147,954	10,387	11,863
California	29,548	33,747	4,997	5,125
Total United States	172,237	181,707	15,384	16,988

	Cracked gasoline		Straightrun gasoline	
	1931	1930	1931	1930
East Coast	14,397	12,961	12,386	12,190
Appalachian	2,575	2,157	4,043	4,107
Indiana, Illinois, Kentucky, etc.	13,042	12,250	12,399	15,005
Oklahoma, Kansas, etc.	8,784	9,088	13,739	15,164
Inland Texas	3,002	3,043	7,948	7,087
North Louisiana-Arkansas	1,345	1,580	1,501	1,391
Coastal Texas	15,071	13,449	12,543	13,682
Coastal Louisiana	3,593	3,713	2,535	3,975
Rocky Mountain	2,303	2,529	2,306	2,722
Total east of California	63,012	60,770	69,390	75,331
California	6,459	5,666	18,092	22,956
Total United States	69,471	66,436	87,383	98,277

Appoint Committee To Study Problems Of Liquefied Gas

Plans for a study of the problems connected with the manufacture and distribution of liquefied petroleum gas have been completed by the Natural Gasoline Association of America.

G. G. Oberfell, chairman of the association's liquefied gas committee announced the appointment of subcommittees which will have charge of certain phases of the investigations to be conducted. E. W. Legatski of the research department of the Phillips Petroleum Co. is chairman of the subcommittee on specifications and testing methods. Other members of the committee are R. E. Cornwell, Carbide & Chemicals Corp., Tulsa; R. E. Baker, Shell Petroleum Corp.; E. L. Stauffacher, Empire Oil & Refining Co., Bartlesville, Okla.; E. A. Wooden, Sinclair Oil & Gas Co., Tulsa; and J. W. Baiden, Skelly Oil Co.

Members of the subcommittee on research and education are Messrs. Baker, Stauffacher and Legatski. A joint meeting of the two subcommittees to outline the work was held July 28 at the association's headquarters in Tulsa.

It is felt that the manufacture and sale of liquefied gases has become a sufficiently important phase of natural gasoline plant operation to justify a detailed study of its most important problems. The product being new the methods of testing, the specifications of the several grades and transportation regulations are of special importance. The subcommittees propose to assemble all the information available on these subjects and make recommendations to a general committee.

Considerable attention will also be given the possible expansion of present markets and the development of new outlets. The available output of these gases at present far exceeds the economic demand so that the market development is as important as the perfection of manufacturing phases.

TEXAS PLANT VALUES TOTAL OVER $55,000,000

Natural gasoline plants in Texas have a valuation of $55,000,000, according to the findings of the Texas Railroad Commission, which has been conducting an investigation covering all rail rates in the transportation of the product within the State. According to the commission, there are 143 plants in the State, all of which were built since 1916, when the Texas Pacific Coal & Oil Co. built the first plant near Strawn, Tex.

The commission found that approximately 50 per cent of the State's natural gasoline production was purchased by refiners and jobbers within the State. The remainder is sold to refiners in other states and also to exporters. Considerable quantities of natural gasoline from Oklahoma, New Mexico, Arkansas and Louisiana is sold to Texas refineries, according to the commission.

SASKATCHEWAN GAS PROJECT

CHATHAM, Ontario, July 27.—It is unofficially reported that the Canadian federal government is planning to remove the duty of 6 cents per 1,000 feet on imported natural gas. As a result, two companies are making applications to the Saskatchewan cities of Moose Jaw and Regina for franchises to supply natural gas to Montana. One company is planning to pipe gas to Regina from the Bowdoin Field.

Refinery Growth In Italy Shown By Import Data

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON. D. C., July 24.—For a long time there has been marked progress in the efforts of Italy to increase its petroleum refinery capacity. The increase in Italian facilities for refining crude petroleum is reflected in the following import figures showing 22.3 per cent increase in imports of crude, 8.3 per cent decline in gasoline and 22.2 per cent decline in lubricating oils for the first quarter of 1931, compared with the figures for the first three months of 1930:

	First quarter 1930 (bbls.)	First quarter 1931 (bbls.)
Crude oil	180,964	221,340
Gasoline	956,131	876,698
Kerosene	323,407	314,952
Lubricating oil	196,735	153,160

Imports by Italy of residues rose from 209,459 bbls. in the first three months of 1930 to 280,000 bbls. in the corresponding period of the present year.

Italy now has facilities for producing approximately 850,000 bbls. of gasoline a year according to Trade Commissioner I. H. Taylor at Milan.

Russian Products

Since about 1922, Russian oil products have been distributed throughout Italy, originally through a private company but since 1925 this distribution has been through a company regarded as a government organization, 66 per cent of its stock being owned by the government itself and the balance by various official and semiofficial institutions, none by private individuals.

This company generally referred to as the "Agip" now operates about 4,000 filling and fuel stations and does about 25 per cent of the retail oil business of the country. The remaining 75 per cent is divided nearly equally between a domestic subsidiary controlled by the Standard Oil Co. of New Jersey and the local company of the Royal Dutch-Shell. A slight balance in the division of this trade is in favor of American oil at this time resulting from the comparatively minor operations of the Vacuum Oil Co. and the Atlantic Refining Co. of Italy.

Information recently received here through private sources indicates that American oil interests may look for increased competition from Russian oil in Italy. It is stated that the Russians are negotiating with the Italian government for an arrangement that will permit direct distribution on their own account with presumably a sales royalty to the Italian government. It is stated that the "Agip" has not been too successful and the new arrangement proposed by the Russians would mean a sure income and no participation in the losses. The Russians are now installing an oil storage plant near Savona, the oil port of northern Italy. The capacity of the plant is variously reported as between 50,000 and 100,000 bbls. It is reported that the Italian government has not yet approved the transfer of the Italian company's rights to the Russian representatives.

TANK FARM IN JOINER DISTRICT IS PLANNED

The Texas Pipe Line Co. is reported planning construction of 12 tanks, each with capacity of 80,000 bbls. in the Bennett Smith Survey, on the northeastern edge of the Joiner Pool in Rusk County, Texas.

Four 55,000-bbl. tanks may be constructed on the same site at a future date, it was said. The company, according to the report, will use the tank farm to augment facilities for handling oil through its trunk line south to Douglas in Nacogdoches County, which had been loaded to its capacity of 50,000 bbls. daily prior to the recent destruction of a pump station at San Augustine.

COURT DECIDES PRORATION ORDERS OF COMMISSION ARE "USURPATIONS"

HOUSTON, Tex., July 25.—The State Railroad Commission's oil proration orders in the East Texas Field are "usurpations" of powers not delegated to that body, according to a decision of a special federal court of three judges sitting here in the injunction suit of the Macmillan Petroleum Corp. against the commission.

The court, presided over by Circuit Judge J. C. Hutcheson, who wrote the opinion, did not consider, and said it could not have considered, the question of constitutionality the corporation raised.

It did, however, adopt the argument of Macmillan counsel that the commission had no right to establish a "conservation policy of its own of broadly economic kind in question here, with all the serious complications which it entails and make that policy effective against attack by camouflaging with words its real purpose and effect, or by pointing to some results in keeping with its powers which may incidentally or accidentally flow from it."

"Certainly," said the opinion, "when a subordinated body like the railroad commission of Texas undertakes as here to deal in a broadly restrictive way with the right of the citizen to produce oil which under the laws of this State he owns, it must be prepared to answer the imperious query:

"'Is it not lawful for me to do what I will with mine own?'

"This must be found not in recitative portions of its orders, for the commission may not more than any other agent, lifting itself by its own bootstraps, supply, by claiming, power it does not have; but in statutes themselves which have created, which control and which are the source of the commission's power."

Merely Arbitrary Order

Judge Hutcheson described the proration orders complained of as resting "not upon legislative authority or direction" and having "no relation to conservation of resources," but as "merely an arbitrary order designed to control the output, price and market for crude oil by reducing the supply of oil to the demand for it."

The commission, said the opinion must answer as to whether its action was lawful when "as here, under the thinly veiled pretense of going about to prevent physical waste, the commission has, in cooperation with persons interested in raising and maintaining prices of oil and its refined products, set on foot a plan which, seated in the desire to bring the supply from compass of demand, derives its impulse and springs from and finds its scope and extent in an attempt to control the delicate adjustment of market supply and demand, in order to bring and keep oil prices up."

The 1930 law, under which the commission issued its proration orders, prohibited physical waste but also fixed the standard of waste at oil produced beyond the amount nominated for future buying by common purchasers.

Enabling Act Needed

AUSTIN, Tex., July 27.—Gen. Jacob F. Wolters, attorney for The Texas Corporation, interpreted the federal court decision in the Macmillan case, in a written comment here as meaning that future proration must be given an enabling act based on reasonable market demand. He said the court pointed out under existing laws the commission could not apply the yardstick of economic waste, and that actual waste had no relation to market demand.

"The court does not say that it is not within the power of the legislature to define economic waste, but that up to this time it has not done so," said Gen. eral Wolters. "This opinion makes it clear that in order to relieve the distressed condition of the oil industry, the legislature must in any conservation act it may enact, clearly, without equivocation or pretense substantially say 'waste incident to or resulting from the production of crude petroleum oil or natural gas in excess of the reasonable market demand for such commodities for current consumption or use. . . plus such amounts as are necessary for building up or maintaining reasonable reserves.'

"Such a provision does not provide for the fixing of price. It merely endeavors to prevent an economic waste as the result of which thousands of small oil wells must shut down with consequent permanent loss of oil, the bankruptcy of producers, the loss of millions of dollars to the revenues of the State and the consequent increase of taxes on other sources in order that the public schools, higher institutions of learning, eleemosynary institutions and the departments of the State may continue to function."

MILLIONS INVOLVED IN SUIT

MEXICO CITY, Mexico, July 27.—An oil case involving $10,000,000 reached the Supreme Court today, arising from a claim of the Compania Petrolero Commercial to oil lands at Amatlan, State of Vera Cruz, which have been exploited by the British-owned Eagle Oil Co.

ACTIVE FIELD IN TRINIDAD

Apex (Trinidad) Oilfields, Ltd.'s field at Fyzabad, Trinidad, B.W.I.

GREAT LAKES PROTESTS AGAINST TAXATION LOAD

ST. PAUL, Minn., July 27.—The Minnesota Tax Commission has decided it has no authority to tax gasoline pipe lines of the Great Lakes Pipe Line Co. because of lack of sufficient legislation. The 200 miles of line will be taxed on its physical value by the various counties it traverses. In 1933 the commission plans to introduce legislation authorizing state taxation on a gross earnings basis.

The company appealed to the State Tax Commission for some form of relief from the multitude of taxes being assessed by counties, townships, school districts and villages, according to Tax Commissioner George E. Wallace.

The legislature failed to enact measures that would have centralized the taxation of gasoline and natural gas pipe lines, Mr. Wallace explained, although the Tax Commission had recommended to the prior session the imposition of a gross earnings tax. As a result, according to Mr. Wallace, the pipe line company, instead of paying a single tax to the State, is being confronted with assessments by every governmental division through which its lines pass. The Tax Commission, Mr. Wallace said, has no authority to act in the premises.

Because of the present situation, the commissioner continued, a natural gas pipe line company which has extended its service eastward to Bismarck, N. Dak., is reported to have deferred extension into Minnesota.

OIL MAN'S CALENDAR

AUGUST

24—Denver, Colo., Oil States Advisory Committee.

31-Sept. 4—Buffalo, N. Y., eighty-second meeting, American Chemical Society.

SEPTEMBER

1-3—Cleveland, Ohio, twentieth national aeronautic meeting, Society of Automotive Engineers.

9—Louisville, Ky., Kentucky Petroleum Marketers Association.

9-11—Denver, Colo., North American Gasoline Tax Conference.

16-18—Atlantic City, N. J., annual meeting, National Petroleum Association, Hotel Traymore.

23-26—Asheville, N. C., American Trade Association Executives.

28-29—Atlantic City, N. J., National Association of Motor Bus Operators, Hotel Ambassador.

OCTOBER

2-3—Houston, Tex., Petroleum Division, American Institute of Mining and Metallurgical Engineers.

12-16—Chicago, National Safety Council.

12-16—Atlantic City, N. J., American Gas Association.

14-16—Pittsburgh, Pa., Society of Industrial Engineers.

27-29—Washington, D. C., S.A.E. National Transportation and Maintenance Committee, Shoreham Hotel.

NOVEMBER

10-12—Chicago, twelfth annual meeting, American Petroleum Institute, Stevens Hotel.

16-21—Pittsburgh, Pa., third International Conference on Bituminous Coal, Carnegie Institute.

DECEMBER

7-12—Atlantic City, N. J., Trade Show, Motor and Equipment—National Standard Parts Association.

9-11—Atlantic City, N. J., American Institute of Chemical Engineers.

28-31—Tulsa, Okla., Geological Society of America, Mayo Hotel.

1932

MARCH

17-19—Oklahoma City, Okla., American Association of Petroleum Geologists.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	July 28		July 21		July 14	
50-52 450 endpoint	.02⅞	.03¼	.02⅝		.02½	.02⅝
56-58 450 endpoint	.02⅞	.03	.02⅝		.02½	
58-60 437 endpoint (U. S. Motor)	.03	.03¼	.02¾	.03	.02¾	.03
60-62 437 endpoint	.03	.03⅜	.02¾	.03⅛	.02¾	.03
60-62 400 endpoint	.03⅛	.03⅜	.03	.03⅛	.03	.03⅛
64-66 375 endpoint	.03¼	.03½	.03¼	.03¼	.03⅛	.03¼
68-70 360 endpoint	.03½	.03⅝	.03¼	.03⅜	.03¼	.03⅜
64-66 437 endpoint (blend)	.02⅞	.03	.02⅝		.02½	.02⅝
NORTH TEXAS—						
50-52 450 endpoint	.02¾	.03	.02½		.02½	
58-60 450 endpoint	.02⅞	.03	.02½	.02⅝	.02½	
58-60 437 endpoint (U. S. Motor)	.03	.03⅛	.02⅝	.02¾	.02⅝	.02¾
60-62 400 endpoint	.03⅛	.03¼	.02⅞	.03	.02⅞	.03
64-66 390 endpoint	.03⅛	.03¼	.03	.03⅛	.03	.03⅛
64-66 375 endpoint	.03¼	.03½	.03⅛		.03⅛	
68-70 360 endpoint	.03⅜	.03½	.03⅛	.03¼	.03⅛	.03¼
64-66 437 endpoint (blend)	.02⅞	.03	.02⅝		.02½	
*NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.03⅜	.03½	.03¼	.03⅜	.03	.03⅛
*ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.03¼	.03⅜	.03⅛	.03¼	.03	.03⅛
PENNSYLVANIA—						
52-54 Naphtha	.04¼		.04	.04¼	.04¼	
54-56 Naphtha	.04⅜	.04½	.04¼	.04⅜	.04⅜	
58-60 Gasoline	.04⅜	.04½	.04¼	.04⅜	.04⅜	
60 Gasoline	.04½		.04½		.04½	
62 Gasoline	.05		.04¾	.05	.05	.05¼
64 Gasoline	.05¼		.05¼		.05⅛	
68-70 350 endpoint gasoline	.05¼		.05¼		.05¼	.05½
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.04¼	.05⅛	.04½	.06	.04½	.06
58-60 400 endpoint domestic gasoline	.04½	.05½	.04¾	.06	.04¾	.06
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.02¾	.03	.02⅜	.02⅝	.02⅜	.02⅝
58-60 437 endpoint (U. S. Motor)	.03	.03⅛	.02¾	.03	.02¾	.03
60-62 400 endpoint	.03⅛	.03¼	.02⅞	.03⅛	.02⅞	.03⅛
64-66 375 endpoint	.03¼	.03⅜	.03¼	.03⅜	.03¼	.03⅜
64-66 437 endpoint (blend)	.02⅝	.03	.02⅜	.02½	.02½	.02⅝
68-70 360 endpoint	.03½	.03¾	.03⅜	.03½	.03¼	.03½
GULF COAST (Export)—						
58-60 U. S. Motor	.03¼	.03½	.03½		.03½	
60-62 400 endpoint	.03½	.03⅝	.03⅝		.03⅝	
61-63 390 endpoint	.03⅝	.03¾	.03¾		.03¾	
64-66 375 endpoint	.03⅝	.03¾	.03¾		.03¾	

*Louisiana, Arkansas and Mississippi delivery. †For local consumption.

NATURAL GASOLINE

OKLAHOMA (Group 3)—	July 28		July 21		July 14	
Grade A, 72-79.9, 375 e.p., rec. 90%	.02¾		.02¼		.02⅛	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02½		.02	.02⅛	.02	
Grade B, 76-83.9, 375 e.p., rec. 85%	.02⅜		.01⅞		.01¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.02¼		.01¾	.01⅞	.01¾	
Grade C, 80-92, 375 e.p., rec. 78%	.02¼		.01¾	.01⅞	.01¾	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.02⅝		.02		.01⅞	.02
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02¼		.01¾	.01⅞	.01⅝	.01¾
Grade B, 76-83.9, 375 e.p., rec. 85%	.02⅛		.01¾		.01⅝	
Grade BB, 84-92, 375 e.p., rec. 85%	.02⅛		.01⅝	.01¾	.01⅝	
Grade C, 80-92, 375 e.p., rec. 78%	.02¼		.01⅝	.01¾	.01⅝	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.02½		.02⅛		.02	
Grade BB, 84-92, 375 e.p., rec. 85%	.02¼		.01⅞		.01¾	
Grade C, 80-92, 375 e.p., rec. 78%	.02¼		.01⅞		.01¾	
CALIFORNIA—						
75-78 375-390 endpoint	.03¼	.04¼	.03¼	.04¼	.03¼	.04¼
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.02⅝	.02¾	.02¼		.02⅛	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.02⅜	.02½	.02		.02	
Grade BB, 84-92, 375 e.p., rec. 85%	.02¼		.01¾		.01⅝	

BURNING OIL

OKLAHOMA (Group 3)—	July 28		July 21		July 14	
41-43 water white kerosene	.01¾	.02	.01¾	.02	.01⅞	.02
42-44 water white kerosene	.02	.02¼	.02	.02¼	.02	.02¼
NORTH TEXAS—						
41-43 water white kerosene	.01¾	.01⅞	.01¾	.01⅞	.01¾	.02
40-41 water white kerosene	.01⅝	.01¾	.01⅝	.01¾	.01¾	
*NORTH LOUISIANA—						
41-43 water white kerosene	.02	.02¼	.02½		.02½	
*ARKANSAS—						
41-43 water white kerosene	.02¼		.02¼	.02½	.02½	
PENNSYLVANIA—						
43 Kerosene prime white	.03⅝		.03⅝		.03⅝	
45 Kerosene water white	.03⅝	.03¾	.03⅝	.03¾	.03⅝	.03¾
46 Kerosene water white	.03⅞	.04	.03⅞	.04	.03⅞	.04
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.05½	.04	.05½	.04	.05½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.01⅞	.02⅛	.01¾	.02	.02	.02⅛
42-44 water white kerosene	.02	.02¼	.02	.02¼	.02⅛	.02¼
GULF COAST (Export)—						
41-43 prime white	.03½		.03½		.03½	
44 prime white	.03½	.03¾	.03½	.03¾	.03½	.03¾

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

OKLAHOMA (Group 3)—	July 28		July 21		July 14	
Below 18 gravity Fuel Oil, per bbl.	.20	.30	.20	.30	.25	.30
18-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.27½	.35
20-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.30	.35
22-26 Fuel Oil, per bbl.	.25	.30	.25	.30	.30	.35
24-26 Fuel Oil, per bbl.	.30	.35	.30	.35	.35	.40
26-30 Fuel Oil, per bbl.	.35	.45	.35	.45	.40	.45
28-30 Fuel Oil, per bbl.	.35	.45	.35	.45	.40	.45
32-36 Gas Oil (industrial)	.00⅝	.00¾	.00⅝	.00¾	.00¾	.01
32-36 Gas Oil (straw color, high cold test)	.00⅝	.00¾	.00⅝	.00¾	.00¾	.01
32-36 Gas Oil (straw color, low cold test)	.01⅛	.01¼	.01⅛	.01¼	.01⅛	.01¼
36-38 Distillate	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
38-40 Straw Distillate	.01¼	.01⅜	.01¼	.01½	.01¾	.01¾
Note—Fuel oils over 40 cold test generally 5 to 10 cents per barrel less.						
NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.15	.25	.15	.25	.17½	.25
24-26 Fuel Oil, per bbl.	.20	.30	.20	.30	.22½	.35
32-36 Gas Oil (industrial)	.00⅝	.00¾	.00⅝	.00¾	.00¾	.01
38-40 Straw Distillate	.01⅛	.01¼	.01⅛	.01¼	.01⅛	.01¼
*NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.50	.60	.50	.60	.50	.60
30-32 Gas Oil (low cold test)	.01⅝	.01¾	.01⅝	.01¾	.01¾	.02
*ARKANSAS—						
33-36 Distillate	.01¾	.02	.01¾	.02	.02	.02¼
30-32 Gas Oil	.01⅝	.01¾	.01⅝	.01¾	.01¾	.02
16-22 Refinery Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
GULF COAST (South Texas)—						
Gas Oil	.02⅛	.02¾	.02⅛	.02¾	.02⅛	.02¾
Bunker C Fuel (cargo lots), per bbl.	.55	.60	.55	.60	.55	.60
Bunker C Fuel (small lots)	.65		.65		.65	
PENNSYLVANIA—						
30-34 Fuel Oil	.02¼	.02½	.02¼	.02½	.02½	
36-40 Fuel Oil	.02¼	.02½	.02¼	.02½	.02½	
CALIFORNIA—						
42-45 480 endpoint engine distillate	.04	.06	.04¼	.06	.04¼	.06
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.60	.80	.60	.80	.60	.80
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.55	.75	.55	.75	.55	.75
†15-19 Fuel Oil, f.o.b. tank cars	.40	.75	.40	.75	.40	.75
27 plus Diesel, per bbl.	.70	.95	.70	.95	.70	.95
30-34 Gas Oil	.75	1.00	.75	1.00	.70	1.00
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.15	.25	.15	.25	.15	.25
22-26 Fuel Oil, per bbl.	.25	.30	.25	.30	.22½	.25
28-30 Fuel Oil, per bbl. (zero)	.35	.40	.35	.40	.35	.37½
32-36 Gas Oil (industrial)	.00⅝	.01	.00⅝	.01	.00⅝	.01
32-36 Gas Oil (zero)	.01	.01⅛	.01	.01⅛	.00⅞	.01⅛
38-40 Straw Distillate	.01	.01¼	.01	.01¼	.01	.01¼

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	July 28		July 21		July 14	
100 vis., 2 color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
100 vis., 3 color, 20-25 cold test	.03¾	.04	.03¾	.04	.03¾	.04
150 vis., 3 color, 20-25 cold test	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾
150 vis., 4 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¾	.06
180 vis., 3 color, 23-28 cold test	.07½	.08	.07½	.08	.07½	.08
180 vis., 4 color, 23-28 cold test	.07¼	.07¾	.07¼	.07¾	.07¼	.07¾
180 vis., 5 color, 23-28 cold test	.07	.07¼	.07	.07¼	.07	.07¼
200 vis., 3 color, 23-28 cold test	.08½	.09	.08½	.09	.08½	.09
200 vis., 4 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
200 vis., 5 color, 23-28 cold test	.07¾	.08	.07¾	.08	.07¾	.08
240 vis., 3 color, 25-30 cold test	.10½	.10¾	.10½	.10¾	.10½	.10¾
240 vis., 4 color, 25-30 cold test	.09½	.10	.09½	.10	.09½	.10
240 vis., 5 color, 25-30 cold test	.09	.09½	.09	.09½	.09	.09½
280 vis., 3 color, 25-30 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12¼
280 vis., 4 color, 25-30 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
280 vis., 5 color, 25-30 cold test	.10¼	.10½	.10¼	.10½	.10¼	.10½
Cylinder Stocks:						
600, steam refined, light green	.04	.05½	.04	.05½	.04	.05½
600, steam refined, dark green	.02½	.03	.02½	.03	.02½	.03
190-200 vis., D color, Bright Stocks	.16		.16		.16	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.12½	.13	.12½	.13	.12½	.13
150-160 vis., D color, Bright Stocks 10-25 c.t.	.12½	.12¾	.12½	.12¾	.12½	.21¾
150-160 vis., D color, Bright Stocks 25-40 c.t.	.11¾	.12¼	.12	.12½	.12	.12½
150-160 vis., E color, Bright Stocks	.11½	.12	.11¾	.12	.11¾	.12
Waxes:						
124-126 White Crude Scale Wax	.01½	.01¾	.01¾	.02	.01¾	.02
All bright stock prices are for domestic movement.						
PENNSYLVANIA—						
34 Neutral	.05½		.05½		.05½	
34 Sundebloom	.05		.05		.05	
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.15	.15½	.15	.15½	.15¼	.15½
180, 3 color	.18	.18½	.18	.18½	.18	.18½
200, 3 color	.20	.21	.20	.21½	.21	
220, 3 color	.23	.26½	.23	.26½	.23¼	.26½
600, steam refined	.08½	.09	.08½	.09	.08	.08½
650, steam refined	.11		.11		.10½	.11
600, Pennsylvania Flash	.11½	.12½	.11½	.12	.11½	.12
600, E filtered	.11	.12	.11	.11½	.11	.11½
600, D filtered, Oil City	.16		.16		.16	
Pennsylvania Bright Stocks below 35 c.t.	.20	.21	.18½	.19	.17	
Pennsylvania Bright Stocks above 35 c.t.	.19	.20	.18		.16½	.17
*122-124 White Crude Scale Wax	.02	.02½	.02	.02⅛	.02	
*124-126 White Crude Scale Wax	.02⅛	.02¼	.02		.02	
*At New York.						
GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05⅜	.05½	.05⅜	.05½	.05⅜	.05½
200 vis., 3 color, pale oil	.07⅜	.07⅝	.07⅜	.07⅝	.07⅜	.07⅝
300 vis., 3 color, pale oil	.08⅜	.08⅞	.08⅜	.08⅞	.08⅜	.08⅞
500 vis., 3½ color, pale oil	.09⅞	.10⅜	.09⅞	.10⅜	.09⅞	.10⅜
750 vis., 3½ color, pale oil	.11⅜	.11⅞	.11⅜	.11⅞	.11⅜	.11⅞
1,200 vis., 3½ color, pale oil	.13⅞	.14⅜	.13⅞	.14⅜	.13⅞	.14⅜
2,000 vis., 4 color, pale oil	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
200 vis., 5-6 color, red oil	.06⅝	.06⅞	.06⅝	.06⅞	.06⅝	.06⅞
300 vis., 5-6 color, red oil	.07⅞	.08⅜	.07⅞	.08⅜	.07⅞	.08⅜
500 vis., 5-6 color, red oil	.09⅜	.09⅝	.09⅜	.09⅝	.09⅜	.09⅝
1,200 vis., 5-6 color, red oil	.12⅞	.13⅜	.12⅞	.13⅜	.12⅞	.13⅜
2,000 vis., 6 plus color	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

CALIFORNIA—						
130 vis., 2½-3 color	.08	.08½	.08	.08½	.08	.08½
200 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
300 vis., 3-3½ color	.10	.11	.10	.11	.10	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
450 vis., 3½-4 color	.12	.12½	.12	.12½	.12	.12½
550 vis., 3½-4 color	.12½	.13¼	.12½	.13¼		
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
400 vis., 5-6 color	.11	.12	.11	.12	.11	.12
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
600 vis., 6½ plus color	.13	.13½	.13	.13½	.13	.14
700 vis., 6½ plus color	.14	.15	.14	.15	.14	.15

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	July 28		July 21		July 14	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.05½	.05¾	.05½	.05¾	.05½	.05¾
Kerosene, water white, 41-43	.04¾		.04¾		.04¾	
*Fuel Oil, Bunker "C," 41-43	.80		.80		.80	
†Fuel Oil, Diesel, 28-30, per bbl.	1.50		1.50		1.50	
Gas Oil, 28 gravity plus	.04		.04		.04	
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04		.04		.04	
Refined Wax:						
120-122 a.m.p., per lb.	.02⅞		.02⅞		.02⅞	
125-127 a.m.p., per lb.	.03		.03		.03	
130-132 a.m.p., per lb.	.03½		.03½		.03½	
133-135 a.m.p., per lb.	.04		.04		.04	
135-137 a.m.p., per lb.	.04½		.04½		.04½	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01⅝		.01⅝		.01⅝	
Amber	.02⅝		.02⅝		.02⅝	
Extra Amber	.02⅞		.02⅞		.02⅞	
Cream	.05⅝		.05⅝		.05⅝	
Lily White	.06½		.06½		.06½	
Snow White	.07		.07		.07	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) EXPORT PRICES

	July 28		July 21		July 14	
600, steam refined cylinder stocks, in bbls.	.15½	.16	.15½	.16	.15½	.16
635, steam refined	.16	.16½	.16	.16½	.16¼	.16½
650, steam refined	.18	.18½	.18	.18½	.18¾	.19
600, Pennsylvania Flash	.19½	.20	.19½	.20	.19½	.20
630, Pennsylvania Flash	.25¾	.26½	.25¾	.26	.25¾	.26
600, Warren E	.19	.20	.19	.20	.19	.20
600, Oil City E	.18	.18½	.18	.18½	.18	.18½
Light 140-150 Bright Stocks	.24¼	.24½	.24¼	.24½	.24¼	.24½
Dark 140-150 Bright Stocks	.23½	.24	.23½	.24	.23½	.24

LOS ANGELES EXPORT PRICES

	July 28		July 21		July 14	
Kerosene, water white	.03½	.05½	.03½	.05½	.03½	.05½
*U. S. Motor gasoline, 53-55, 437 e.p.	.04½	.06	.05	.06½	.05	.06½
*58-60, 400 endpoint gasoline	.05	.06	.05½	.06½	.05½	.06½

*For coastwise shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Kansas, Oklahoma and North Texas (July 22, 1931)§	.40
Oklahoma (July 27, 1931)¶	.50
East Texas (July 17, 1931)§	.15
Rusk County, Tex. (April 6, 1931)*	.25
Corsicana heavy (June 3, 1931)†	.22
Other fields	See gravity table

*Posted by Panola Pipe Line Co. ¶Posted by Magnolia Petroleum Co., June 20; Stanolind Oil & Gas Co., June 25. †Posted by Magnolia Petroleum Co. ‡Posted by Tidal Western Oil Co. §Posted by Continental Oil Co. ¶Sinclair Refining Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties. See gravity table

WEST TEXAS

Iatan and Westbrook. Same as North Texas	
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties*	$ .25
Lea County, N. Mex.*	.25

*The Texas Company, July 23, 1931. All other companies, June 24.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective July 11, 1931)

Penna Grade Oil in National Transit Lines (Pennsylvania)	$1.35
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.30
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.10
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	.95
Corning Grade Oil in Buckeye Pipe Line Co.'s Line	.50
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931)	.40
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931)	1.17

Tide Water Pipe Co.
(Effective July 11, 1931)

Bradford, Pa., crude	$1.60
Allegany, N. Y., crude	1.60

Pure Oil Co.
(Effective July 11, 1931)

Cabin Creek, W. Va.	$1.10
Kelly's Creek, W. Va.	1.10
Bradford Hollow, W. Va.	1.10

GULF COAST

Grade A and Grade B classifications discontinued	See gravity table
Jennings, La. (July 13, 1931)*	$ .30
Lockport, La. (July 8, 1931)†	See Gulf Coast gravity table
Refugio light	See gravity table
Refugio heavy (July 23, 1931)§	.44
Markham (July 8, 1931)§	.25
High Island (July 24, 1931)¶	.35

*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining Co. §The Texas Company. Other companies July 24. ¶Gulf Pipe Line Co.

NORTH LOUISIANA-ARKANSAS

Smackover, Ark. (all grades) (June 2, 1931)*	$ .37
Smackover, Ark. (all grades) (June 2, 1931)†	.30
Smackover (all grades) (July 24, 1931)‡	.30
Urbana (July 24, 1931)‡	.20
Bellevue, La. (June 3, 1931)	.25
Urania (June 3, 1931)	.30
Calion, Ark., heavy (June 3, 1931)	.37
East El Dorado, Ark. (June 3, 1931)	.35
Stephens, Ark. (June 3, 1931)	.20
Other fields	See gravity table

*Posted by The Texas Company on June 2, 1931, and by Gulf Refining Co. on June 3. †Posted by Magnolia Petroleum Co. on June 3. ‡Posted by Standard Oil Co. of Louisiana July 24, 1931. Bellevue posted by Magnolia Petroleum Co., Standard Oil Co. of Louis-

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CRUDE OIL GRAVITY TABLE

	Oklahoma, Kansas, North Central and East Central Texas	Oklahoma, Kansas, North Central and East Central Texas	Oklahoma, North Central Texas, North Louisiana	North Louisiana and Arkansas	Salt Creek, Wyoming	Gulf Coast	Gulf Coast
	1	2	3	4	5	6	7
Below 25 degrees	....	....	....	....	....	$0.31	$0.40
25-25.9 degrees	....	....	....	....	....	.32	.41
26-26.9 degrees	....	....	....	....	....	.33	.42
27-27.9 degrees	....	....	....	....	....	.34	.43
Below 28 degrees	....	$0.27	....	....	....	....	....
28-28.9 degrees	....	.30	....	....	....	.35	.44
Below 29 degrees	$0.30	....	....	$0.30	$0.30	....	....
29-29.9 degrees	.31	.31	....	.31	.31	.36	.45
30-30.9 degrees	.32	.32	....	.32	.32	.37	.46
31-31.9 degrees	.33	.33	....	.33	.33	.38	.47
32-32.9 degrees	.34	.34	....	.34	.34	.39	.48
33-33.9 degrees	.35	.35	....	.35	.35	.40	.49
34-34.9 degrees	.36	.36	....	.36	.36	.41	.50
35-35.9 degrees	.37	.37	....	.37	.37	.42	.51
Below 36 degrees	....	....	$0.35	....	....	....	....
36 degrees and above	....	....	.40	....	....	....	....
36-36.9 degrees	.38	.38	....	.38	.38	.43	.51
37-37.9 degrees	.39	.39	....	.39	.39	.44	.51
38-38.9 degrees	.40	.40	....	.40	.39	.45	.51
39-39.9 degrees	.41	.41	....	.41	.39	.46	.51
40 degrees and above	.42	.42	....	.42	.39	.47	.51

Note.—On July 22, 1931, the Magnolia Petroleum Co. posted North Central crude oil, including Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, at 40 cents per barrel; Oklahoma, including Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole, 40 cents per barrel; and withdrew its posted price in Kansas, which included Augusta only. On July 24 the Magnolia company posted Mexia, Wortham, Corsicana light, Panola and Lytton Springs and Thrall, all in Texas, 40 cents per barrel. It made no announcement of change in Gray County, Texas Panhandle, in which, since June 20, it has paid 30 cents; Carson or Hutchinson County, which remains at 27 cents; or in North Louisiana, where it pays 36 cents in Bull Bayou, 27 cents in Haynesville, 32 cents in Pine Island, 25 cents in Cotton Valley, and 25 cents in Smackover and Rainbow, Arkansas.

Column 1—Stanolind Crude Oil Purchasing Co., July 24, 1931, followed on same day by Tidal Refining Co., Continental Oil Co. and Kanotex Refining Co.

Column 2—Carter Oil Co., July 24, followed by Barnsdall Oil Co., Pure Oil Co., Gypsy Oil Co., Mid-Continent Petroleum Corp., Empire Oil & Refining Co., Skelly Oil Co. (in Kansas), Vickers Petroleum Co. (Kansas), Derby Oil & Refining Co. (Kansas).

Column 3—The Texas Company, July 23, 1931; Humble Oil & Refining Co., Gulf Pipe Line Co., July 24, in North Central Texas and East Central Texas.

Column 4—Standard Oil Co. of Louisiana on July 24, 1931; Louisiana Oil & Refining Co., Gulf Refining Co. of Louisiana, Spartan Refining Co. on July 25.

Column 5—Mid West Refining Co., July 24.

Column 6—The Texas Company, July 23.

Column 7—The Humble Oil & Refining Co., July 24; Gulf Pipe Line Co., Sinclair Refining Co., July 24.

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a. m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.73
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).

Coalinga—55 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).

Montebello—65 cents for all grades (14° to 25.9°).

Whittier and LaHabra—65 cents for all grades (14° to 22.9°).

Elwood Terrace, f.o.b. ship—32° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above 87 cents.

Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices, effective June 20, are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills, 30 gravity and above, 66 cents.

Potrero, 24 gravity, 69 cents with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

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TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns July 28

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago	14.0	14 0	3.0	9.0
Decatur, Ill.	14.4	14.4	3.0	9.0
E. St. Louis	13.7	13.7	3.0	8.2
Joliet	14.4	14.4	3.0	9.0
Peoria	14.4	14.4	3.0	9.0
Quincy	14.2	14.2	3.0	8.8
Davenport, Ia.	14.5	14.5	3.0	9.3
Des Moines	14.5	14.5	3.0	9.5
Keokuk	14.5	14.5	3.0	9.3
Sioux City	14.1	14.1	3.0	8.9
Duluth, Minn.	15.5	15.5	3.0	9.9
Mankato	15.1	15.1	3.0	9.7
Minneapolis	15.2	15.2	3.0	9.9
La Crosse, Wis.	16.2	16.2	4.0	10.0
Milwaukee	15.1	15.1	4.0	8.8
Madison	15.2	15.2	4.0	9.1
Detroit, Mich.	10.3	10.3	3.0	10.7
Grand Rapids	14.7	14.7	3.0	10.6
Saginaw	14.9	14.9	3.0	10.8
Evansville, Ind.	15.1	15.1	4.0	9.9
Indianapolis	15.3	15 3	4.0	10.1
South Bend	15.4	15.4	4.0	10.2
Fargo, N. D.	16.9	16.9	3.0	11.9
Huron, S. D.	16.3	16.3	4.0	10.7
Sioux Falls	15.8	15.8	4.0	10.4
K. C., Mo.	13 9	13.9	3.0	7.6
Springfield*	13.9	13.9	3.0	8.5
St. Louis*	12.9	12.9	3.5	8.3
St. Joseph	13.5	13.5	3.0	7.5
Wichita, Kans.	12.8	12.8	3.0	7.5
Bartlesville, Ok.	13.0	16.0	5.0	7.5

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 2 cents or more below the price on the regular grade.

Effective April 15—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 2 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price.

Discount in Chicago division on 1,000 gallons or more per month: Red Crown Ethyl Gasoline, 4 cents off tank wagon price; Red Crown gasoline, 3½ cents off tank wagon price; Stanolind Blue gasoline, 3 cents off tank wagon price.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	13.0	14.0	4.0	8.0
Fort Worth	11.0	12.0	4.0	8.0
Houston	11.0	13.0	4.0	11.0
San Antonio	11.0	13.0	4.0	10.0
El Paso	12.0	14.0	4.0	12.0
Texarkana	16.0	16.0	4.0	11.0
Muskogee, Ok.	13.0	14.0	5.0	8.0
Okla. City	13.0	14.0	5.0	7 0
Tulsa	13.0	14.0	5.0	8.0
Ft. Smith, Ark.	14.0	14.0	5.0	11.0
Little Rock	15.5	16.0	6.0	11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	16.25	16.25	4.0	9.25
McCook	16.0	17.75	4.0	10.75
Norfolk	15.75	16.75	4.0	9.75
N. Platte	16.75	17.75	4.0	10.50
Scottsbluff	16.0	16.0	4.0	10.25

Note—Dealers' discounts allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal station price; Red Crown, 3½ cents off normal service station price; Nebraska Blue (third grade) 1-cent off normal service station price.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	15.3	15.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14.8
Rochester	16.0	16 0	2.0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	16.5	16.5	3.0	13.5
Augusta, Me.	15.8	15.8	4.0	14.8
Manch'tr, N. H.	15.4	15.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	*11.0	*12.0	...	11.0
Philadelphia	*11.0	*12 0	...	11.0
Scranton	*11 0	*12 0	...	11 0
Allentown	*11.0	*12 0	...	11.0
Altoona	*11.0	*12.0	...	11.0
Erie	*11.0	*12 0	...	11 0
Dover, Del.	14.0	15 0	3 0	11 0
Wilmington	14 0	15 0	3 0	11.0
Springf'd, Mass.	15.5	16.0	3.0	10.0
Fall River	15 0	16.0	3.0	11.0
Worcester	15.3	16.0	3.0	11 0
Boston	14 5	15.0	3 0	11 0
Providence, R.I.	12.5	13.0	2.0	10.0
Hartford, Conn.	14.5	15.5	2.0	10.0
New Haven	14.6	16.6	2.0	10.0

*Does not include tax of 3 cents in Pennsylvania. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The above prices are subject to discounts to dealers and to commercial accounts under contract for one year in accordance with Code of Ethics.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.	15.5	16.5	6.0	12.0
Baton Rouge	14.5	15.5	6.0	12.0
Alexandria†	15.5	16 5	6.0	12.0
Lafayette*	15.5	16.5	6.0	12.0
Lake Charles*	15.5	16.5	6.0	12.0
Shreveport	14.5	15.5	6.0	12.0
Knoxville, Tenn.	18.0	19 0	6.0	13.5
Memphis	14.0	15.0	6.0	10.0
Chattanooga	17.5	18.5	6.0	12.0
Nashville	17.0	18.0	6.0	12.5
Bristol	17.0	18 0	6 0	14.0
Lt. Rock, Ark.	15.5	16.0	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points	15.0	16.0	4.0	*13.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13.0 cents.

PACIFIC COAST TERRITORY

	Gasoline			Kero.
	Wh'l's'e price	Retail* price	Incl'ds tax of	tank wagon
Fresno	19.5	16.5	3.0	17.0
San Francisco	19.5	16.5	3.0	16.5
Los Angeles	19.0	16.0	3.0	15.5
Reno, Nev.	23.5	20 5	4.0	19.0
Portland, Ore.	21.0	18.0	4.0	16.5
Seattle, Wash.	22.0	19.0	5.0	16.5
Tacoma	22.0	19.0	5.0	16.5
Spokane	23.5	20.5	5.0	20.5
Phoenix, Ariz.	15.5	17.5	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	14.0	17.0	4.0	13.5
Pueblo	14.0	17.0	4.0	12.0
Grand Junction	13 0	16 0	4 0	14 5
Casper, Wyo.	15.0	18 0	4.0	10.0
Cheyenne	16.0	19.0	4.0	11.5
Butte, Mont.	17.0	20.0	5.0	16.0
Billings	20.0	23.0	5.0	14.5
Great Falls	20.0	23.0	5.0	16.0
Helena	20.0	23 0	5.0	16.0
Salt Lake, Utah	11.0	14.0	4.0	16 0
Albu'que, N.M.*	17 0	20.0	6 0	14 0
Boise, Idaho	19 5	22 5	5 0	18 0
Twin Falls	19.5	22.5	5.0	18.0

*One-cent excise city tax.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atl'tic City, N.J.	13.7	13.7	3.0	10.5
Newark	12.7	12.7	3.0	9.5
Annapolis, Md.	14.2	15.2	4 0	10.0
Baltimore	13.4	14.4	4.0	8.5
Cumberland	15.2	16.2	4.0	11.0
Wash'ton, D.C.	11.9	12.9	2.0	9.7
Danville, Va.	16.0	17.0	5.0	10.8
Norfolk	14 5	15.5	5.0	9.3
Petersburg	15.5	16.5	5.0	10.3
Richmond	14.9	15.9	5.0	9.7
Roanoke	16.2	17.2	5.0	11.0
Charles'n, W.Va.	14.7	15 7	4.0	10.5
Keyser	15.3	16.3	4.0	11.1
Parkersburg	13.4	14.4	4.0	9.3
Wheeling	14.6	15.6	4.0	10.4
Charlotte, N. C.	17 5	18 5	6 0	11 3
Hickory	17.8	18.8	6.0	11.6
Mt. Airy	17.7	18.7	6.0	11.5
Raleigh	17.4	18.4	6.0	11.2
Salisbury	17.7	18.7	6.0	11.5
Charleston, S.C.	15 5	16.5	6.0	9.3
Columbia	17.4	18.4	6.0	11.2

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers, except in Washington, D. C. and in States of New Jersey and Maryland where discount is 3 cents.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	14 0	16.0	6.0	12.5
Augusta	18.0	20.0	6.0	14.0
Macon	16.0	18.0	6.0	12.0
Savannah	16 0	16 0	6 0	12 0
Birm'ham, Ala.	14.0	16 0	5.0	13.0
Mobile	16.0	16.0	4.0	10 0
Montgomery	16 0	16 0	4.0	13 5
Clarks'le, Miss.	18.0	20.0	5.0	13.5
Jackson	13 5	14 5	5 0	11.5
Natchez	18.0	20.0	5.0	13 5
Gulfport	16.0	16.0	5.0	13.5
Vicksburg	14.5	15.5	5 0	11 5
Jack'ville, Fla.	17.0	18.0	6.0	12.0
Miami	18.0	20.0	6.0	13.0
Pensacola	18 0	19 0	6 0	13 0
Tampa	17.0	18.0	5.0	12.0
Lexington, Ky.	17.0	18.0	5.0	13.0
Covington	16.0	17.0	5.0	11.0
Louisville	16.0	17.0	5 0	11.0
Ashland	17.0	19.0	5.0	13.0
Paducah	17 0	17.0	5 0	11.0
Bowling Green	19.0	21 0	5.0	14.5
Corbin	18.0	19.0	5.0	16.0

A third grade, "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	12.0	8.0
V.M.&P. naphtha	14.0	9.5
Cleaners' naphtha	16.2	11.0
Stanisol	16.2	11.0

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

All dumps of 50 gallons or more $0.07

Note—Outside Chicago furnace oils discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

TANK WAGON CHANGES

Standard Oil Co. of Kentucky—Effective July 1, gasoline service station price at Paducah, Ky., reduced to 17 cents from 18 cents. June 26, gasoline tank wagon price at Jackson, Miss., reduced to 14 cents from 16 cents and on July 8 reduced to 13½ cents. The gasoline service station price at Jackson was reduced to 16 cents from 18 cents on June 26 and then on July 8 reduced to 14½ cents. July 8, gasoline tank wagon price at

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CRUDE OIL PRICE CHANGES

The Continental Oil Co. started something when on July 22 it raised its price for crude oil in Kansas, Oklahoma and North Texas to 40 cents per barrel. It started a general price advance in Kansas, Oklahoma, North Texas, Central Texas, Texas Panhandle, West Texas, Southwest Texas, Gulf Coast, Lea County, New Mexico, Rocky Mountain and

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CRUDE OIL PRICES

(Continued from Page 157)

iana having ceased posting on July 11, 1931. Urania by Louisiana Oil Refining Co. Calico by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co. Stephens posted by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (July 23, 1931)	$ .37
Luling (June 3, 1931)†	.36
Mirando (July 21, 1931)	.44
Pettus (July 23, 1931)‡	.50
Salt Flat (July 23, 1931)‡	.37
Thrall§	..
Lytton Springs (Lockhart) See gravity table	
Dobrowolski‖	
Same as Mid-Continent gravity scale up to and including 38-38.9°	
Somerset¶	
Same as Mid-Continent gravity scale up to and including 38-38.9°	

‡The Texas Company, July 23; Gulf Pipe Line Co. and Humble Oil & Refining Co., July 24. §Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ‖Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products Co. ‖Pioneer Oil & Refining Co. in Mirando Magnolia Petroleum Co. posted July 21, The Texas Company July 23, Humble Oil & Refining Co. and Gulf Pipe Line Co. July 24.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles (July 10, 1931)	$ .30
Fort Collins (July 10, 1931)	.15
Florence (July 10, 1931)	.12
Wellington (July 10, 1931)	.18
Dutton Creek (July 10, 1931)	.25
Rock Creek, Wyo. (July 25, 1931)	.50
Frannie, light (July 10, 1931)	.20
Frannie, heavy (July 10, 1931)	.10
Salt Creek.....Mid-Continent gravity table	
Big Muddy (July 25, 1931)	.45
Grass Creek (July 25, 1931)	.65
Elk Basin (July 25, 1931)	.65
Lance Creek (July 25, 1931)	.80
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.65
Hudson (June 2, 1931)	.85
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.90
Lost Soldier (Mar. 5, 1931)	.55
Hamilton Dome (Mar. 14, 1927)	.85
Greyhull (Oct. 28, 1930)	1.25
Torchlight (Oct. 28, 1930)	1.25
Cat Creek (July 10, 1931)	.45
Pondera, Mont. (July 10, 1931)	.60
Sunburst, Mont. (July 25, 1931)	.70
Hogback, N. Mex. (July 10, 1931)	.50
Artesia, N. Mex. (June 3, 1931)	.35
Lea County, N. Mex. (July 24, 1931)	.35
Border, Mont.	1.55
Red Coulee, Alberta	1.55
Dry Creek, Mont. (July 10, 1931)	.60

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by the Continental Oil Co. Osage posted by Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective July 24, 1931)

Lima	$ .70
Wooster	.73
Illinois	.55
Indiana	.35
Princeton	.55
Plymouth	Shut in
Western Kentucky	.50
Midland, Mich.* (July 24, 1931)	.55
Dundee, Mich.†	..
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale	
Upper and Lower Traverse Sands, Mich.†	
....Same as Mid-Continent gravity scale	
Somerset, Ky. (July 24, 1931)	.55
Oil City, Ky. (June 6, 1931)	.50
Petrolia (Canada) (July 24, 1931)‡	1.75
Oil Springs (Canada) (July 24, 1931)‡	1.82

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‡Posted by Stoll Refining Co. ‖Posted by Imperial Oil, Ltd. ‖Posted by Imperial Oil Ltd., and Regal Oil & Refining Co. of Calgary. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and delivered through Cumberland Pipe Line.

MEXICAN CRUDE

Panuco*	$ .44

*F.o.b. ship, based on June transactions and exclusive of taxes and bar dues.

Of Interest to Sales Departments

Receive Support In Effort to End Retail Price War

In their efforts to stabilize the retail end of their marketing operations, oil companies in California are receiving considerable support from leading business men engaged in other industries. The oil companies recently advanced their prices and in full page advertisements appearing in California papers asked public support for their action, pointing out that the price wars of the past had materially reduced the earning and spending power of the entire State.

Their action has received the approval of many chambers of commerce, luncheon clubs and other organizations. A business men's committee was organized in Los Angeles to aid in ending price cutting in the sale of gasoline and other petroleum products.

Tom May, executive vice president of the May Co., one of the largest department store operators on the Pacific Coast, in a public statement said that the gasoline wars were largely responsible for bad business conditions in California. In a radio address he said:

"When you buy gasoline at 10 cents a gallon you may think you are saving money. But for every penny saved, eventually a dollar is lost in wages, salaries, sales of merchandise, rents and the circulation of money all through California.

"Therefore, you are asked to set your face against price-cutting. Be willing to pay the regular price for gasoline, and motor oil, the smallest expense in running a car. If your local gasoline dealer cuts prices, thinking that he can do more business, let him know that you oppose that practice. Tell him to run his business in a sensible way, and make his legitimate profit. Tell him that this protects the purchasing power of California, and let him know that you will support him."

INTERSTATE GASOLINE TAXABLE

WASHINGTON, D. C., July 25.—The Supreme Court of the United States in the case of Boeing Air Transport, Inc., against W. H. Edleman, former Wyoming state treasurer, has decided that the State of Wyoming may legally tax sales on gasoline sold in that State for use in interstate airplant traffic. The tax rate is 4 cents per gallon. The Boeing Air Transport has a contract with the Post Office Department for transportation of the air mail.—C. E. K.

NO MISSOURI STATUTE

Although gasoline dealers who color a regular grade of gasoline and sell it at a premium are "apparently guilty of obtaining money by false prtenses" the attorney general's department in Missouri has held nothing can be done about it because there is no Missouri statute relating to motor fuels which deals with this matter. Several dealers in the State are said to be engaged in the practice.

RUSSIAN GASOLINE MARKET

WASHINGTON, D. C., July 25.—A small shipment of Russian gasoline has arrived in Wellington, New Zealand. If the gasoline is satisfactory it will be followed by negotiations for its importation in large quantities.

During April, 1931, New Zealand imported 300,223 bbls. of gasoline and kerosene, of which quantity 248,625 bbls. came from the United States.—C. E. K.

BELIEVE SEARS, ROEBUCK PLAN TO ENTER SERVICE STATION FIELD

Considerable importance in marketing circles is attached to the Chicago announcement that Sears, Roebuck & Co. has started the construction of a superservice station and exhibit room at Arthington and Homan Avenue, in that city. The new station is located across the street from the company's west side retail store. The station will sell the company's branded gasoline, lubricating oils and greases and also offer a complete tire and battery service.

Although no official announcement has been made it is understood that the company contemplates the erection of similar stations in other cities. It has been rumored in marketing circles for some time that some of the large tire distributing concerns such as Sears, Roebuck & Co. were considering the operation of large combination stations which would offer a complete service to motorists. The tire sales of the large mail order houses have decreased during the past year due largely to the competition of tire and oil companies.

Several of the large tire manufacturers, either directly or through dealers, have established superstations throughout the country selling not only tires and tire accessories but oils, gasoline, batteries, brake service and offering other services to motorists. Several of the major and smaller oil companies have enlarged their oil stations to include similar services.

By reducing their sales costs these tire and oil companies have been able to sell tires and many other accessories at prices comparable to those of mail order houses. The Firestone company, which pioneered the superstation idea among tire manufacturers, now has these stations in all the larger cities and many small cities and towns. The company advertises that it can meet mail order prices on tires at these stations.

It is now believed that Sears, Roebuck & Co. is preparing to meet this competition with similar stations at which a complete service will be offered motorists.

Chicago Station

The new Chicago building will consist of two sections separated by a 24-foot paved roadway and two 8-foot sidewalks. It will occupy a frontage of 255 feet. In one section will be a gasoline and oil station with six pumps, a small automobile tire and accessories store, a washing and greasing plant and a department for free tire and battery servicing.

In the other section there will be exhibits and salesrooms for the company's home construction departments, including miniature model houses, construction machinery, roofing, flooring and other building materials. This section will also have a unit for the display and sale of seasonable outdoor merchandise, and there is a possibility that some of the space may be leased to outside concessionaires. The building will have rest rooms and waiting rooms and a parking space for customers' baby carriages.

The two sections will be joined by a large, electrically illuminated arch extending over the roadway and sidewalks. One section will be 155'x100' and the other 100'x40'.

The building will be of brick with stone trim. Ground has already been broken for the foundation and the oil and gas tanks and the structure will be ready for opening about August 15.

EASTERN COMPANIES PLAN TO STABILIZE RETAIL MARKETING

NEW YORK, July 24.—With market sentiment showing a definite turn for the better, eastern marketers are concentrating on plans for stabilization of retail gasoline markets, and substantial progress is looked for in this direction in the near future. Improvement in the retail marketing situation will be brought about, it is stated, both by a closer control over retail outlets, through purchase or lease of independent stations, and more general application of the provisions of the industry's code of ethics in eastern markets.

A number of the large integrated companies, in strong financial position, have seized upon the opportunity presented by present low construction costs to further extend their chains of directly-owned stations, in addition to picking up independent stations in the open market, and the close of 1931 will witness a larger percentage of gasoline marketed by major companies through owned or controlled service stations than ever before in the history of the industry.

In addition to the construction and purchase of directly owned retail outlets, many of the major companies have been active during the past year in booking contracts with independent filling station chains for exclusive distribution of their products. These contracts, most of which are for relatively long terms, in effect tie up these stations as direct outlets, with pricing and operations in every way in line with those by the company's directly owned outlets.

Eastern companies have watched with close interest the new plan introduced by major marketers in California, under the terms of the resale price maintenance law in that State, whereby independent retail stations, in effect, become company agents, selling gasoline, lubs, and other refined products at prices dictated by the oil company with which they tie up, the latter reserving the right to withdraw the agency privilege if the price contract is violated by the retailer. While this plan is held to be a satisfactory one for California, it is impracticable, from a number of standpoints, in the East.

Application of Code

Application of the code and its provisions has proved a difficult task in the East, not only because of the multiplicity of competing marketing companies in this territory, but likewise because of the unfamiliarity of the eastern trade with this form of trade association activity. It has taken the best part of a year for the various regional and state code committees in eastern territory to get themselves organized, and their membership acquainted with one another, and because of this the East has been much slower than other sections of the country to reflect the more advantageous aspects of the code's provisions.

Recent developments, however, have indicated that substantial progress is being made in furthering the cause of the code of ethics in many parts of the East, and there has been a noticeable betterment in marketing conditions where this progress has occurred.

The eastern committee, handling the application of the ethics code in the south Atlantic states, is also making considerable progress in securing the co-operation of marketers in that area in the furtherance of the code's provisions, and

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MAJOR COMPANIES GAIN IN GASOLINE GALLONAGE

The major distributors in California increased their June gasoline gallonage at the expense of the smaller operators, according to a report just released by the State. In June, seven major marketing companies sold 88 per cent of the 125,171,072-gallon total while in May they sold 80.4 per cent of the total.

The only important change in the ratings of the several major companies was the replacement of the General Petroleum Corp. by the Associated Oil Co. as the third largest distributor in the State. The Associated's June gallonage was greater than in May while that of the General corporation decreased. The following table gives the distribution of the major distributors for May and June:

		June	May
1	Standard	28,104,778	27,003,863
2	Shell	21,895,357	22,525,846
3	Union	17,386,318	15,805,372
4	Associated	13,550,277	12,625,074
5	General Pet.	12,614,094	14,522,060
6	Richfield	11,866,651	12,571,288
7	Texaco	5,517,936	5,495,781
8	Wilshire	3,051,729	3,211,314
9	U. R. Refining	2,714,545	2,772,057
10	Hancock	2,499,431	2,621,930
11	Rio Grande	2,296,436	1,905,467
12	Western Oil	2,090,390	2,712,413
13	Macmillan	1,245,897	1,512,068
14	Seaside	1,153,954	995,785
15	Estado	1,020,090	1,383,805

RUSSIAN EXPORTS GAIN

NEW YORK, July 25.—Russian exports of refined petroleum products during the fiscal year 1929-30 showed a substantial increase over the exports of the previous fiscal year, according to reports from Moscow.

Detailed data on exports for the two fiscal years follow:

	Tons	
Destination—	1929-30	1928-29
England	926,300	725,500
Italy	814,800	521,500
Germany	497,500	484,000
France	487,600	358,000
Spain	360,700	308,000
Egypt	253,400	238,500
India	188,100	174,000
Turkey	184,700	208,000
Others	689,500	505,500

A total of 172,400 tons of fuel oil was used for bunkering in Russian ports during 1929-30, as compared with 95,500 tons similarly used in the previous fiscal year.

NOT SUBJECT TO TAX

Attorney General Thomas E. Knight, Jr., of Alabama has held that lubricating oil sold in packages and used as a household commodity is not subject to the state's lubricating oil excise tax.

BEMOAN THE ADVENT OF OCTANE NUMBERS

NEW YORK, July 25.—Eastern brokers bitterly bemoan the advent of octane ratings to the varied category of gasoline specifications. One broker here was negotiating this week for a cargo of gasoline for an eastern marketer, and the deal progressed satisfactorily until the buyer insisted that the motor fuel in question have an octane rating of 65 or higher.

The broker discovered that the gasoline he had "lined up" for his prospective buyer did not come up to the desired rating, and somewhat heatedly demanded of the client "what an octane was." "I don't know what they are," the buyer said, "but unless you can give me at least 65 of 'em in every gallon you sell me, the deal is off."

Sinclair's Expansion Program Maturing

Early Announcement of Plans Expected as Result of Improved Stock Market Conditions and Better Prospects in Oil Industry

Improvement in stock market conditions, accompanied by a definite indication of better conditions in the petroleum industry, have brought the expansion plans of Sinclair Consolidated Oil Corp. close to fruition, and early announcement of a combination involving Sinclair, Tide Water Associated Oil Co., Rio Grande Oil Co., and the Prairie companies is looked for, according to reports in financial circles.

Harry F. Sinclair, chairman of the board of Sinclair Consolidated, is in California in connection with the merger, and has been in conference with William F. Humphreys, president of Associated Oil Co. of California, Pacific Coast unit of Tide Water Associated. It is understood that Mr. Sinclair has also conferred further with Rio Grande officials during his visit to the coast.

Indications of an understanding between Sinclair and Prairie have been frequent during recent months, the latest development along this line being the action of the Sinclair company in announcing that its new pipe line to the East Texas fields has been connected with Prairie's trunk line system to the Mid-Continent, indicating that Sinclair's plans for utilizing Prairie Pipe Line to replace crude gathering and transportation facilities sold recently to Standard Oil Co. of Indiana have not been changed.

Consolidation of Sinclair, Prairie Oil & Gas Co., Prairie Pipe, Tide Water Associated, and Rio Grande would result in the formation of a corporation with aggregate assets in excess of $1,000,000,000 after depreciation, which would constitute the largest oil company in the United States, with the exception of Standard Oil Co. (New Jersey).

Socony-Vacuum Corp., proposed vehicle for the consolidation of Standard Oil Co. of New York and Vacuum Oil Co., will show total assets, less depreciation, of some $960,000,000, ranking this company third in this country in the event that the Sinclair expansion program goes through along the lines indicated at present.

El Paso Natural Gas

Statement of El Paso Natural Gas Co. and subsidiary, El Paso Gas Utilities Corp., for year ended December 31, 1930, shows net income of $282,500 after taxes, interest and depreciation, equivalent after dividends on 7 per cent preferred stock, to $2.48 a share on 96,325 no-par shares of common stock. Gross revenue for year totaled $1,197,795.

Consolidated balance sheet as of December 31, 1930, shows total assets of $7,154,758, comparing with $6,963,020 at close of 1929 and surplus of $290,843, against $84,475. Current assets amounted to $387,502 and current liabilities to $99,290, comparing with $277,881 and $114,900, respectively, on December 31, 1929.

Buckeye Pipe Line

Buckeye Pipe Line Co. declared the regular quarterly dividend of $1, payable September 15 to stock of record August 21.

Regular Sinclair Preferred

Sinclair Consolidated Oil Corp. declared the regular quarterly dividend of $2 on the 8 per cent preferred, payable August 15 to stock of record August 1.

Crown Central Petroleum

Report of Crown Central Petroleum Corp. and subsidiaries for year ended December 31, 1930, shows net loss of $741,965 after interest, extraneous claims paid, abandoned lease, depletion and depreciation.

Los Angeles Gas & Electric

Los Angeles Gas & Electric Co. has declared the regular quarterly dividend of $1.50 on the preferred stock, payable August 15 to stock of record July 31.

National Refining

National Refining Co. has declared two quarterly dividends of 12½ cents each on the common stock, placing the stock on a 50 cents annual basis, against $1.50 previously. Dividends are payable August 15 and November 15 to stock of record August 1 and November 1, respectively.

Atlantic Refining

The preliminary report of the Atlantic Refining Co. and subsidiary companies for the six months ended June 30, 1931, shows a net loss of $4,013,000, after the payment of interest, depreciation, depletion, intangible development costs, and also after inventory adjustments of $2,940,000. This is the first report of a refining company, excepting Union Oil of California, which, however, is engaged in other businesses.

This loss compares with a net profit of $2,818,823 in the first half of 1930, equivalent to $1.05 a share (par $25) on 2,689,066 average shares of common stock outstanding during the period, and $1.04 a share on 2,696,581 shares at the close of that period.

In the quarter ended June 30 of this year, the company's net loss totaled $1,850,200, after taxes, charges, inventory adjustments, etc., comparing with a net loss of $2,162,800 in the previous quarter of this year, and further comparing with a profit of $1,694,523 or 63 cents a share on 2,696,581 shares of stock in the second three months of 1930.

American Tank Car

General American Tank Car Corp. and subsidiaries report for six months ended June 30, 1931, net profit of $2,475,000 after charges, depreciation and federal taxes, equivalent to $3.02 a share on 818,833 no-par shares of capital stock. This compares with $3,653,699, or $4.58 a share on 797,422 shares in first half of 1930.

For quarter ended June 30, 1931, net profit was $1,271,000 after charges and taxes, equal to $1.55 a share on 818,833 shares, comparing with $1,204,000, or $1.47 a share, on 818,833 shares in preceding quarter and $1,949,782, or $2.44 a share, on 707,422 shares in June quarter of previous year.

Louisiana Oil

Louisiana Oil Refining Corp. has declared its regular quarterly dividend of $1.62½ on the 6½ per cent cumulative convertible preferred stock, payable August 15 to stock of record August 1.

Vulcan Oils, Ltd.

The financial statement of Vulcan Oils, Ltd., covering a period from July 1, 1928, to December 31, 1930, shows income of $34,473 including $28,735 from production; while payments included, administration, $21,681; royalties, $2,873; taxes, $3,467; depreciation, $9,231, which, with other items, leaves a loss for the period of $2,819. The balance sheet shows current assets of $79,931 and current liabilities $2,292.

Sun Oil Co.

Report of Sun Oil Co. and subsidiaries for six months ended June 30, 1931, shows net income of $1,049,403 after interest, depreciation, depletion, federal taxes, etc., equivalent after dividend requirements on 6 per cent preferred stock, to 49 cents a share on 1,535,403 no-par shares of common stock. This compares with $3,658,157 or $2.42 a share on 1,409,323 shares in first half of 1930.

The company declared the regular quarterly dividend of 25 cents on the common, payable September 15 to stock of record August 25 and $1.50 on preferred, payable September 1 to stock of record August 10.

Atlantic Refining

The preliminary report of the Atlantic Refining Co. and subsidiaries for six months ended June 30, 1931, shows net loss of $4,013,000 after interest, depreciation, depletion, intangible development costs, and after inventory adjustment of $2,940,000. This compares with net profit of $2,818,823 in first half of 1930, equal to $1.05 a share (par $25) on 2,689,066 average shares of common stock outstanding during the period, and $1.04 a share on 2,696,581 shares at close of that period. For the quarter ended June 30, 1931, net loss was $1,850,200 after taxes, charges, etc., comparing with net loss of $2,162,800 in the preceding quarter, and net profit of $1,694,523 or 63 cents a share on 2,696,581 shares of stock in second quarter of previous year.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Dec.	3	30.53	Apr.	1	24.80
Dec.	10	28.57	Apr.	8	25.52
Dec.	17	25.42	Apr.	15	24.72
Dec.	24	25.68	Apr.	22	22.73
Dec.	31	26.15	Apr.	29	20.54
Jan.	7	27.56	May	6	20.74
Jan.	14	27.31	May	13	20.38
Jan.	21	27.55	May	20	19.25
Jan.	28	27.26	May	27	18.35
Feb.	4	27.26	June	3	18.00
Feb.	11	27.76	June	10	19.62
Feb.	18	28.53	June	17	19.23
Feb.	25	29.33	June	24	22.33
Mar.	4	27.67	July	1	22.32
Mar.	11	26.53	July	8	21.24
Mar.	18	26.78	July	15	19.79
Mar.	25	26.35	July	22	21.33

Peoples Gas, Light & Coke

Peoples Gas, Light & Coke Co. and subsidiaries report for quarter ended June 30, 1931, net income of $1,805,904 after interest, taxes and depreciation, equivalent to $2.70 a share on 668,201 shares of stock. This compares with $1,772,339 or $2.65 a share on 666,903 shares in preceding quarter and $1,801,-

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STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending July 18)

1931 High	1931 Low	Week ending July 18 Sales	Week ending July 18 High	Week ending July 18 Low	Close July 22	Stocks	Outstanding cap'tal	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1	⅛	No sales.	..	..	..	Atlantic Lobos	499,448	N.P.	....	5-28-30	..	..	..	..	1	¼
12⅞	6¼	50	7	7	..	Borne Scrymser	$1,000,000	$25	....	10-15-30	56½	44½	46½	25	25	11¼
51	40	200	45	44½	..	Buckeye Pipe Line	$10,000,000	$50	$1Q	6-15-31	76	53	74½	55	69	39⅞
129¼	101	No sales.	..	..	..	Chesebrough Mfg.	$3,000,000	$25	$1Q‡	6-30-31	161	117	210	130	184⅞	104¼
3⅞	2	1,200	2¾	2⅝	2⅝	Creole Petroleum	(sh) 5,977,873	N.P.	....	.....	17½	9½	11¾	5⅝	7⅝	3
30	20⅝	No sales.	..	..	..	Cumberland Pipe Line	$1,500,000	$50	50cQ	6-15-31	114	67	75¾	40	65¾	20¼
31	24	No sales.	..	..	..	Eureka Pipe Line	$5,000,000	$100	$1Q	5- 1-31	88	64⅛	70½	40	54¾	26
2⅞	1	No sales.	..	..	..	Galena Signal Oil	$16,000,000	$100	....	.....	13	4¼	6½	3	7	2½
72	49⅞	1,500	62	55	62	Humble Oil & Refining	$74,103,300	$25	50cQ	7- 1-31	114¾	59½	128	74⅛	119	57¼
18¼	9⅝	3,800	12¼	11⅜	12⅛	Imperial Oil of Canada (new)	(sh) 25,421,768	N.P.	12½cQ	6- 1-31	104	56¾	41	22	30	15
21⅛	9⅛	7,800	11⅝	11	..	Indiana Pipe Line (new)	$3,000,000	$10	25cQ	5-16-31	91⅞	74⅜	41⅞	26	41	14½
15½	8¾	6,100	12¼	11⅛	12	International Petroleum	(sh) 14,247,088	N.P.	25cQ	6-15-31	55	35	30⅜	15	24	11⅜
17½	11¼	500	13½	12⅜	..	National Transit	$6,362,500	$12.50	25cQ	6-15-31	32⅜	19⅜	25⅛	10⅛	22⅜	11½
14½	7⅝	No sales.	..	..	..	New York Transit	$1,000,000	$10	25cQ	7-15-31	75	38½	17½	10	21⅜	10⅛
30	27	No sales.	..	..	..	Northern Pipe Line	$2,000,000	$50	$2SA	7- 1-31	69	56½	63	41	54	26¼
15½	8	100	12	12	..	Penn Mex Fuel	$10,000,000	$25	75c	6-24-31	84	28	44½	20	32	12
13⅜	3¼	7,500	10⅞	5	11½	Solar Refining	$4,000,000	$25	....	12-20-29	..	..	50	29	33	4⅞
17	10	No sales.	..	..	..	Southern Pipe Line	$1,000,000	$10	50c	6- 1-31	19	15	22½	13	20⅞	8⅜
23⅞	12⅜	300	18	13	13¼	South Penn Oil	$30,000,000	$25	25cQ	6-30-31	71⅞	36¾	60¼	35½	45⅞	16⅛
38	31¼	No sales.	..	..	..	Southwest Pennsylvania Pipe Line	$1,750,000	$50	$1Q	7- 1-31	102	70	70	60	64	32
38½	19¼	15,100	27	25½	27⅝	Standard Oil of Indiana	$348,175,069	$25	50cQ	6-15-31	95⅞	70⅞	63	45	59⅞	30
23⅝	15⅝	3,700	18½	17⅞	19	Standard Oil of Kentucky	$25,654,516	$10	40cQ	6-30-31	179¾	122¼	46⅞	29	40½	18⅝
36½	19¼	No sales.	..	..	..	Standard Oil of Nebraska	$4,649,225	$25	50cQ	6-20-31	54⅞	39⅞	50¼	40	48⅞	34⅝
62½	35	300	43½	42¼	..	Standard Oil of Ohio	$14,000,000	$25	62½cQ	7- 1-31	134	71	129	60	108½	43¼
3½	2⅝	300	3¼	3¼	..	Swan-Finch Co.	$861,466	$25	....	1-15-29	23¼	16	18	10	10	4
69¾	22⅛	21,400	43¾	39⅛	45	Vacuum Oil Co.	$126,180,350	$25	50cQ	6-20-31	111	72	133¾	75	97¾	45⅝

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending July 18)

1931 High	1931 Low	Week ending July 18 Sales	High	Low	Close July 22	Stocks		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1¾	½	1,100	¾	⅝	⅝	American Maracaibo	(sh)	700,000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
16⅞	8½	500	10⅛	10⅛	..	British American Oil Corp.		1,311,321	N.P.	20cQ	7- 2-31	55	32¾	62	7⅞	23	13⅜
2⅜	½	400	1⅛	1⅛	1¼	Carib Syndicate		$131,250	25c	....	.....	4½	3⅞	4⅞	1	2¾	⅝
20¾	9¾	95,200	11	10	10½	Cities Service	(sh)	24,290,359	N.P.	30cA‡	7- 1-31	90⅞	54	68⅛	20	44¼	13
84¾	61¼	800	66	65	65½	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	7- 1-31	103¼	94½	98¾	84	93⅞	78¼
½	⅛	1,200	⅛	⅛	..	Colombia Syndicate		$2,000,000	$1	....	.....	3¼	.76	2	½	¾	⅛
2¾	1½	No sales.	..	..	..	Consolidated Royal		$5,527,875	$10	7½cQ	4-25-31	8⅞	6¼	11⅛	2½	5⅞	2
⅝	¼	No sales.	..	..	..	Crown Central		.....	....	....	.....	..	..	..	..	..	..
5	2	100	3	3	..	Darby Petroleum		1,019,392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¼
6	2½	600	2¾	2½	..	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2¼	1	11	2	11	2
40½	26	No sales.	..	..	..	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
75½	39	3,300	58	50½	58	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	7- 1-31	165	101⅛	209	115	166⅞	58½
⅝	¼	6,100	7/16	7/16	⅜	Intercontinental Petroleum		$5,682,000	$5	....	.....	3⅜	1	2⅞	⅜	1¾	⅜
1⅞	½	No sales.	..	..	..	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
1½	½	100	¾	¾	¾	Leonard Oil & Development		$50,000,000	$25	....	.....	9⅜	5⅛	6⅛	1	4¾	½
6¾	3½	No sales.	..	..	..	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	43⅞	20	38⅞	18	29	4⅞
25	14⅛	2,000	17⅞	17	16⅛	Lone Star Gas	(sh)	5,000,000	N.P.	22cQ	6-30-31	69⅛	48½	67⅞	28	55⅞	19⅝
½	⅛	11,000	1/16	3/16	¼	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1⅞	½	1¼	½	½	⅛
5	3	No sales.	..	..	..	Margay Oil Corp.		160,000	N.P.	....	7-10-30	48½	32	38½	14	16	3
4⅞	1½	100	3¾	3¾	..	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	8	2¾	6⅜	2¼	7½	1¾
½	¼	No sales.	..	..	..	Mountain & Gulf		$4,000,000	$1	....	4-15-31	1¾	.76	1½	¼	¾	⅜
5⅞	3⅛	300	3¾	3¾	4	Mountain Producers		$1,682,182	$10	25cQ	7- 1-31	28⅞	19½	22⅞	7	12⅛	3¾
1½	½	100	⅝	⅝	..	New Bradford Oil		$1,095,291	$5	....	4-15-31	5⅝	4¼	5	2½	3½	1⅛
3	1¼	700	1½	1⅜	1½	New Mexico and Arizona		$1,000,000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
3¼	1⅜	100	1¾	1¾	..	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
½	⅛	5,500	1/16	⅛	3/16	Pandem	(sh)	489,875	N.P.	....	.....	6	2⅛	3½	½	2½	¼
2	⅝	No sales.	..	..	½	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅝	⅞
1⅝	½	500	1⅛	1⅛	1⅜	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	12⅞	4¼	8½	1⅛	5⅜	1
3	1¼	No sales.	..	..	..	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	12	4⅛	11	2	8⅝	2
1⅜	¾	100	¾	¾	..	Salt Creek Consolidated	(sh)	1,286,300	$10	....	4- 1-31	7¼	5½	5⅞	1⅞	2½	½
7¾	4	1,400	5¾	4⅝	4⅞	Salt Creek Producers	(sh)	1,496,859	$10	35cQ	5- 1-31	35	23⅛	25⅞	9	15¼	5¼
5¼	1	1,900	1⅞	1½	1⅝	Sunray Oil	(sh)	1,163,185	$5	5%Q§	4-15-31	..	..	12	5⅝	10	2
1⅞	⅝	200	¾	¾	¾	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9⅛	4¾	6½	1¾	4½	⅜
3½	1½	100	2⅜	2⅜	..	Woodley Petroleum		$500,000	$1	....	3-31-29	8¼	4⅞	9½	2	5	½
2¼	¼	2,600	2⅛	1¾	1⅞	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅜

*Ex-dividend. †Unit of trading less than 100 shares. ‡Payable monthly and mo athly stock dividend of one-half per cent. §Paid in lieu of regular cash dividend of 2 per cent.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending July 18)

1931 High	1931 Low	Week ending July 18 Sales	High	Low	Close July 22	Stocks		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
23	15½	1,100	19	17	..	Amerada Corp.	(sh)	922,075	N.P.	50cQ	4-30-31	43⅞	27⅛	42⅝	17½	31½	16½
12⅜	5	300	6	5⅝	..	American Republics Corp.	(sh)	209,180	N.P.	....	12-31-30	85	51⅛	64⅜	12½	37	5⅛
31	20	No sales.	..	..	..	Associated Oil		$57,260,300	$25	35c	6-30-31	53⅜	37½	47¼	34½	51	30
23⅝	11⅛	8,100	15⅞	14¼	16	Atlantic Refining		$66,763,775	$25	25cQ	6-15-31	66⅜	50	77⅞	30	51⅜	16⅝
14½	5¾	5,500	8½	7⅜	8½	Barnsdall Corp. A		$56,546,600	$25	25cQ	5-11-31	54	20	49⅛	20	34	8⅝
12	5	18,500	8½	7½	9	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	47⅞	18	30½	7¾
47	15¼	9,500	22¼	18½	22	General Asphalt	(sh)	413,333	N.P.	75cQ	6-15-31	94⅞	68	94¾	42¼	71½	22⅜
68½	27	7,200	40¾	36	40⅛	Houston Oil		$24,968,600	$100	....	10-17-30	167	79	109	26	116⅞	29¼
4⅜	2	800	2¼	2⅛	2⅛	Indian Refining		$12,564,070	$10	....	10- 1-30	39⅝	9	53	13⅛	17	2
4½	2	300	2⅝	2⅝	2½	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	19¾	9⅜	18	7	12	3½
3¾	1	100	2⅜	2⅜	..	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	25½	12½	18½	5⅛	10⅜	1⅜
20¾	10⅝	17,300	15	13⅛	15	Mexican Seaboard	(sh)	1,244,383	N.P.	....	10- 1-24	72	4⅝	50⅜	8¼	37	9¾
16¾	5¾	2,200	9	8½	10⅛	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	44½	25⅛	39⅞	22⅛	32	11
19½	7	10,900	10⅜	8⅞	10	Ohio Oil	(sh)	6,648,052	N.P.	....	3-14-31	84	58½	79⅞	64¼	32	16
35⅛	25	No sales.	..	..	..	Pan American P. & T.		$50,084,700	$50	40c	7-20-31	50⅞	38¼	69	40½	46½	42
36½	24	No sales.	..	..	..	Pan American P. & T. "B"		$121,110,650	$50	40c	7-20-31	59⅞	37¾	69¼	40½	67¼	30
4¼	1½	200	2	2	..	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	21¾	11½	15¼	3	12¾	1¾
20	10	10	10¼	10¼	..	Panhandle P. & R. pfd.		$2,564,400	$100	....	.....	108	70	76	47½	20	47½
16⅝	4¾	9,100	7¾	7	8½	Phillips Petroleum	(sh)	2,593,075	N.P.	....	1- 2-31	53⅞	35¼	47	24¼	44¾	11½
1½	½	400	⅝	⅝	¾	Pierce Oil Corp.		$29,622,831	$25	....	.....	5¼	½	3⅜	1	2½	½
3⅜	1	100	1⅞	1⅞	2¼	Pierce Petroleum	(sh)	2,500,000	N.P.	....	2-16-31	7	3½	5⅞	½	7⅛	1⅛
20⅜	6½	900	10	9	10⅝	Prairie Oil & Gas		$60,848,000	$25	....	3-31-31	68	46	65⅜	40½	54	11¼
26½	15⅝	5,700	17½	16½	17⅞	Prairie Pipe Line		$101,250,000	$25	75cQ	6-30-31	280	172	65	45	60	16⅝
6	1⅞	100	2¾	2¾	..	Producers & Refiners		$37,438,950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
16	6½	20	8	7	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
11⅞	5½	3,200	7⅜	6¾	8	Pure Oil		$75,959,250	$25	....	9- 1-30	31⅝	19	30¾	20	27¼	7⅝
6⅜	1	1,400	1½	1⅜	1½	Richfield Oil (new)		$52,410,875	N.P.	....	.....	56	23	49⅝	20	9¾	4⅛
10¼	3⅛	1,100	4	3¾	4½	Rio Grande Oil	(sh)	1,236,270	N.P.	....	7-25-30	37½	32	42½	15	25¾	5
42⅝	24⅞	5,000	30	26⅛	28¼	Royal Dutch N. Y.	(sh)	611,303	....	$1.3404	1-30-31	64	44⅝	64	43⅛	56½	36⅞
34	19	No sales.	..	..	..	Shell Transport & Trading Co.		£23,985,000	£1	$0.966	7- 6-31	47⅞	41⅜	51½	40⅝	48⅜	26
10¼	4½	7,300	6¾	6	6¾	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	39¼	23¼	31⅜	19	25½	5¼
11	5	1,600	6½	6	6¾	Simms Petroleum		$8,353,620	$20	....	9-15-30	27½	18⅛	40⅛	15	37	5⅝
15⅞	6¼	47,200	10½	8¾	10⅞	Sinclair Consolidated	(sh)	5,500,000	N.P.	....	4-15-31	46¾	17⅜	45	21	32	9¾
103	77	No sales.	..	..	..	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	5-16-31	110	102½	111	103	112¼	86
12⅞	3⅛	900	4¾	4⅜	5¼	Skelly Oil		$27,441,250	$25	....	12-15-30	42⅝	25	40½	28	12	10⅛
51⅜	31⅜	18,100	37	35¼	37⅛	Standard of California	(sh)	12,594,098	N.P.	62½cQ	6-15-31	80	63	81⅞	51½	75	42½
19	8¾	500	11	9¾	13	Standard of Kansas		$8,000,000	$25	....	3-16-31	37¾	15	33¾	18	49	14⅜
52½	30⅝	54,600	38	35¼	38½	Standard Oil of New Jersey		$634,999,200	$25	25cQ‡	6-15-31	59⅜	37¾	83	49	84⅞	32½
26	13⅞	43,900	17¾	16	18⅛	Standard Oil of New York		$445,223,675	$25	40cQ	6-15-31	33¼	28¾	48⅛	31⅜	40⅜	19⅜
45¼	31	200	39	39	42	Sun Oil	(sh)	1,416,869	N.P.	25cQ	6-15-31	77	31½	68⅜	55	70	39
1¾	⅝	500	⅝	⅝	⅝	Superior Oil Corp.	(sh)	766,979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	¾
36¼	18	15,300	23⅜	21¼	23½	The Texas Corporation		$246,204,900	$25	50cQ	7- 1-31	74¾	50	71⅞	50	60½	28¼
6½	2½	300	3¾	3½	..	Texas Pacific Coal & Oil Co.		$9,304,890	$10	....	12-31-29	26⅝	12⅛	23⅞	9½	14½	4
9	4¼	No sales.	..	..	..	Tide Water Oil	(sh)	2.191.759	N.P.	15cO	6-30-31	41½	19⅝	40	14	31	13
83	54	No sales.	..	..	..	Tide Water Oil pfd.	(sh)	19,947,000	N.P.	$1.25Q	5-16-31	100⅛	86	97½	85⅛	94⅞	71
9	4	4,100	5⅜	4⅞	5⅜	Tide Water Associated	(sh)	5,560,424	N.P.	30c8A	2-16-31	25	14⅜	23½	10	17⅜	5⅞
63	38	500	45	44	47½	Tide Water Associated pfd.		$73.284.500	....	$1.50Q	7- 1-31	..	..	90⅞	74⅛	89¾	55
26⅝	14	5,000	17⅞	16¼	16¾	Union Oil of California		$104,342,375	$25	50cQ	5- 9-31	58	42⅜	57	42⅛	50	10⅛
25⅛	20	800	20⅝	20⅛	..	Union Tank Car	(sh)	1.254.048	$100	40cQ	6- 1-31	128¼	110	163¾	121⅞	38½	23
7⅜	1⅝	300	3	3	..	Warner-Quinlan	(sh)	632.948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¼
9¾	3½	300	5	4¼	5⅝	Wilcox Oil & Gas	(sh)	428.907	N.P.	....	5-10-28	..	..	29¾	12⅞	21	6½

*Ex-dividend. †Unit of trading less than 100 shares. ‡plus extra dividend of 25 cents.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

EXPORT AND EASTERN MARKET IS IMPROVED

(Continued on Page 143)

quotations, and no additional business has been reported booked since that time, although considerable foreign buying interests is in evidence.

No trading in domestic crude for export was reported. One buyer here, who was negotiating for 2,000,000 bbls. for shipment to France over the balance of the year, reported that a domestic integrated unit had closed a contract with the supplier with whom he had been negotiating.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended July 18 totaled 1,642,000 bbls., an average of 234,571 bbls. daily, compared with 1,406,000 bbls., a daily average of 200,857 bbls. for the previous week and a daily average of 218,393 bbls. for the four weeks ended July 18. Details follow:

(Barrels of 42 Gallons)

At Atlantic Coast Ports—	
Baltimore	326,000
Boston	97,000
New York	640,000
Philadelphia	387,000
Others	127,000
Total	1,577,000
Daily average	225,286
At Gulf Coast Ports—	
New Orleans and Baton Rouge	65,000
Total	65,000
Daily average	9,285
At Atlantic and Gulf Coast Ports—	
Total	1,642,000
Daily average	234,571
Daily average four weeks	218,393

Distribution of total imports is as follows:

Crude	1,083,000
Gasoline	294,000
Fuel oil	265,000

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended July 18 totaled 313,000 bbls., a daily average of 44,714 bbls., compared with 568,000 bbls., a daily average of 81,143 bbls. for the previous week and a daily average of 49,464 bbls. for the four weeks ended July 18. Details follow:

(Barrels of 42 Gallons)

At Atlantic Coast Ports—	
Baltimore	85,000
New York	156,000
Others	72,000
Total	313,000
Daily average	44,714
At Gulf Coast Ports—	
All ports	None
At Atlantic and Gulf Coast Ports—	
Total	313,000
Daily average	44,714
Daily average four weeks	49,464

Distribution of total California oil receipts is as follows:

Gasoline	215,000
Fuel oil	98,000

Shipments of California refined products for Atlantic and Gulf Coast ports for the week (with identity of owner of tanker moving the oil where such owner is an oil company) follow:

For New York—96,000 bbls. of gasoline on the China Arrow (Standard Oil Co. of New York).

For Seawaren, N. J.—80,000 bbls. of gasoline on the Betterton (Tide Water Associated Oil Co.).

Charter Market

Routine trading again characterized the tanker charter market during the past week. There was relatively little inquiry for clean tankers, either in domestic or export markets, and tonnage continued plentiful at low rates.

Some tentative inquiries for transatlantic movement of both crude and products are reported, but actual fixtures in any quantity are not looked for in the immediate future. Coastal and intercoastal markets were likewise quiet.

Fixtures reported during the week were as follows:

Motorship Anna Maersk (Danish), 7,700 tons, black oil, Black Sea to the Copenhagen-Gotherburg range, six voyages, 9/-, July.

Steamer Tritone (Italian), 6,000 tons, one round voyage to Davis Strait on time basis, 4/6, delivery Batoum, redelivery Istanbul, July.

CHICAGO MARKET IS IN A HEALTHIER STATE

(Continued from Page 142)

was said that the volume of oil sold for heating purposes in Chicago has increased steadily and that at this time the indicated annual consumption is expected to reach a total for the year of 250,000,000 gallons.

In spite of the improved undertone in the fuel oil and gas oil markets, the prices at the close of the week were unchanged. However, reports that the crude oil price increases were scheduled to react upon refinery operations principally at the points where there has been greatest disturbance, has brought a wariness to most sellers so that the extremely low prices quoted are no longer fairly representative of the markets. Little if any immediate improvement is seen for the 18-22 fuel oil, except that the stocks will probably show less increase if the current crude schedules are maintained. All of the products are suffering from the continued downward trend in industrial activity. An encouraging note, which probably offers more cheer in the gasoline and lubricating oil markets, is the fact that at least eight of the principal automobile manufacturers have called off the usual "summer slump" vacations at their plants. The fluctuating nature of the steel business makes it impossible to gauge this marketing field.

Prices at the close of the week were: 18-22 fuel oil, per barrel, 20 to 25 cents; 22-26 fuel oil, per barrel, 25 to 30 cents; 28-30 fuel oil (zero), per barrel, 35 to 40 cents; 32-36 gas oil (industrial), ⅝ to 1 cent; 32-36 gas oil, zero, 1⅛ to 1¼ cents; 38-40 straw distillate, 1⅛ to 1⅜ cents.

ONLY A FEW FIELDS INCREASED PRODUCTION

(Continued from Page 22)

and the last half of that year 35,218,035 bbls. The Gulf Coast has not been under any definite proration orders such as issued by the State Railroad Commission of Texas so the reduction in output has been accomplished by curtailed drilling. The commission in determining the amount of oil to be produced for any given period always has set a maximum allowance for the Texas Coast (Louisiana Coast not affected) but has left it up to operators on the coast to bring production down to that allowance by their own methods. Coastal fields are not adaptable to prorated flow as practiced in other areas, but maintenance of coastal production does reflect the number of completions. That is, to keep up coastal production, new wells must be brought in continually. Thus to reduce coastal production it is only necessary to lower the completion rate and this was done by restricted drilling, limiting work to outside and obligated tests.

Restricted drilling also kept production down in West Texas. The Yates Field, if there were need for the oil, could produce 500,000 bbls. a day as easily as 100,000 bbls., even with the wells already in, but continuous drilling would have made it very difficult to keep production down. The area has been inactive throughout the half year and the result was that production slumped greatly.

The Reagan County Field was the only one in the West Texas area that showed an increase in production over the same period last year. Deep wells of large output made it possible for the field to show an increase of 1,730,778 bbls.

In the Southwest Texas fields a number of new pools were opened but the discoveries were not followed up. The area showed an increase in production of 1,287,992 bbls. over the same period in 1930, Darst Creek and Mirando being largely responsible for this.

The North Central Texas and Panhandle fields all felt the effects of the let-up in drilling and their production declined. North Central Texas slumped 9,812,530 bbls., and the Panhandle 7,071,353 bbls. East Central Texas, thanks to Van's increase, netted a gain of 3,261,150 bbls. over the first half of last year.

The Rocky Mountain fields outside of New Mexico slipped somewhat in crude oil output due to the lack of drilling.

In the eastern fields, voluntary curtailment of Pennsylvania Grade crude oil had a severe effect on the production of New York, Pennsylvania, West Virginia and southeastern Ohio, and the old Central West fields of western Ohio, Indiana and Illinois and the Kentucky and Michigan fields produced less oil in the first half of 1931 than in the same period last year.

Only One State Increased

Every state in the Union excepting New Mexico fell off in production. It seems remarkable that Texas did not produce as much as in the same period a year ago, but, while East Texas was adding 31,532,184 bbls., West Texas, the Panhandle and North Central Texas declined 35,017,723 bbls., and the losses in the Gulf Coast fields offset gains in East Central and Southwest Texas.

The Hobbs Pool in New Mexico was responsible for the better showing made by New Mexico which has a distinction the State never looked forward to—that of being the only State in the United States to show an increase in production over a previous year.

INCREASE IN PRODUCTION IN MAJOR POOLS

	Production first 6 months 1931 (bbls.)	Increase over same period 1930 (bbls.)
Texas:		
Lathrop	5,978,408	5,978,408
Kilgore	14,597,596	14,597,596
Joiner	10,956,180	10,956,180
Van	6,826,231	4,163,260
Barbers Hill	4,272,855	104,700
Dewalt	2,112,209	30,216
Darst Creek	4,458,017	1,111,868
Mirando	3,389,696	671,224
Pettus	1,259,993	972,963
Big Lake	4,683,607	1,730,778
North Louisiana:		
Zwolle	1,462,736	1,462,736
Kansas:		
McPherson County	4,388,594	1,658,081
Oklahoma:		
Oklahoma City	24,536,965	6,666,265
Carr City	3,310,650	705,237
Wewoka	1,482,266	785,657
New Mexico:		
Hobbs	6,056,356	5,446,494
California:		
Playa Del Rey	5,614,002	5,356,042
Dominguez	2,060,506	216,658
Kettleman Hills	5,972,150	3,488,445
Total increase		66,102,858

DECLINE IN PRODUCTION OF MAJOR POOLS

	Production first 6 months 1931 (bbls.)	Decrease from same period 1930 (bbls.)
Texas:		
Hull	1,181,134	491,760
Humble	1,761,519	1,025,930
Pierce Junction	1,587,125	451,641
Raccoon Bend	1,537,369	466,626
Refugio	5,502,369	852,672
Spindletop	1,981,158	1,074,382
Brazos	2,444,791	1,793,314
Luling	1,539,666	195,665
Burkburnett	1,276,085	391,495
Electra	1,535,284	468,686
Archer County	2,164,448	1,175,794
Wilbarger County	1,885,695	2,594,357
Young County	2,210,395	525,741
Hutchinson County	1,610,082	2,561,001
Gray County	7,552,381	3,433,795
Church-Fields-McElroy	3,428,980	2,915,207
Settles-Roberts-Chalk	4,772,211	1,885,718
Yates	14,794,640	7,629,207
Hendrick-Leck	8,138,831	6,586,430
California:		
Coalinga	1,561,136	127,624
Elk Hills	3,631,295	711,611
Kern River	1,985,350	1,033,695
Midway-Sunset	9,568,004	2,789,147
Mount Poso	1,406,151	731,196
Elwood	5,994,231	1,510,302
Ventura Avenue	7,922,118	910,002
Coyote	1,842,007	121,055
Fullerton	1,556,567	216,658
Huntington Beach	3,932,321	1,933,592
Inglewood	3,761,114	655,052
Long Beach	16,025,656	2,390,173
Santa Fe Springs	12,768,659	13,155,225
Seal Beach	2,653,893	1,888,481
Richfield	1,241,582	796,975
Oklahoma:		
Burbank	2,394,910	668,147
Seminole City	3,460,006	1,351,285
Bowlegs	2,488,796	1,281,515
Little River	5,699,892	4,801,624
Earlsboro	7,598,429	6,824,130
Mission	1,388,435	912,301
Allen	2,221,403	1,605,737
Konawa	2,212,185	347,358
Asher	1,529,068	1,148,832
St. Louis-Pearson-Maud	4,007,567	4,021,822
Cushing Shamrock	2,381,882	152,861
Bristow	1,965,953	443,864
Healdton	1,939,358	232,761
Sholom Alechem	2,415,397	31,418
Sasakwa	550,540	1,326,754
Pennsylvania-New York:		
Bradford-Allegany	5,167,371	1,860,629
North Louisiana:		
Caddo	1,884,017	369,327
Arkansas:		
Smackover	6,607,858	1,657,138
Kansas:		
Wichita area	3,227,536	629,201
Eldorado-Augusta	4,042,333	515,691
Greenwood County	2,833,875	891,575
Wyoming:		
Salt Creek	4,682,543	658,134
Total decline		90,344,974

EASTERN COMPANIES TO IMPROVE RETAIL MARKET

(Continued from Page 159)

the resultant elimination of many of the unfair and unethical practices which were creeping into gasoline marketing operations.

Principal difficulty in putting the code into practice has been encountered in some of the larger metropolitan areas in the East. In these territories the competitive situation is intensified by the operations of numerous independent distributors, some of whom are not affiliated with the trade organizations working for better conditions in the industry, and who are likewise unwilling to subscribe to the provisions of the code which has been developed as a result of majority sentiment on the part of the rank and file of the industry.

Marketing Third Grades

It is in these areas, principally, that some of the major companies have been obliged to resort to the marketing of so-called "third grades" of motor fuel, to sell on a competitive basis with the gasolines, often off-grade, marketed by the price cutting independents. The question of the place and marketing of these "third grades" in the general market category with respect to the code and its operation is a vexing one, and no solution has yet been found.

Eastern retail gasoline markets have been generally unsatisfactory during recent months, and the cause of this condition does not reflect too highly on the marketing sagacity of some distributors. In many instances, a price cut by a single small independent has been the signal for a general downward revision, for no valid reason. For example, a small independent may get a consignment of off-grade gasoline, bought at a price which enables him to undersell his nearby competitors by a cent a gallon and still realize a nice net. He accordingly lowers his price. A nearby station, operated by a major company, notes this reduction and its manager gets authority to meet the cut. Other surrounding stations, operated by still other major units, take the same action, and the result is a widespread lowering of prices to meet a competition which does not really exist. What the large competitors of the small independent frequently fail to realize is that the price cutting independent may attract some of their regular business away from them through a cut price, but that he will in many instances be unable to hold this trade because his gasoline is not up to standard, and motorists, as a class, will not continue to buy unsatisfactory gasoline, even "at a price."

Many companies, which have been unduly liberal in authorizing local managers to revise prices "to meet competition," are now beginning to become cognizant of the many abuses which this policy has led up to, and it is believed that there will be a general tightening of the strings in this direction in the near future.

The petroleum industry is up in arms against the rapidly spreading rises in gasoline road taxes in various states, and although this abuse of taxing powers has become flagrant in some states, the industry has yet to arouse the general public to a full realization of the trend in this direction. This has been due entirely to the low prices at which gasoline has been selling at the refineries, and the consequent low price to the motorists, notwithstanding higher road taxes. The higher gasoline prices which are looked for by the industry are expected to sharply focus the attention of the motoring public on the gasoline tax evil, and bring to the industry the support of the general public in a move for some lightening of this tax burden.

HALF YEAR OF BIG INITIAL PRODUCTION

(Continued from Page 25)

it was hoped that air-tight legislation would be passed giving the State Railroad Commission, or some other authoritative body, the power to regulate the production of the field in line with general industrial needs.

Oklahoma City Field

Oklahoma, outside of the Oklahoma City Field, experienced a quiet six months. The big Capital field was a busy area, but drilling is slow in that 6,400-foot field, requiring 120 days or more to drill and complete a well, which accounts for the fact that only 163 oil wells were completed in the half year, an average of less than one a day or about 27 per month.

Only 714 wells were completed in the State as against 1,898 in the first half of last year and as against 2,545 in the first half of 1926, a year in which it looked as if all the big fields had been discovered and drillers were busy from New York State to California trying to find new pools.

No important discoveries were made in the State and many wildcats were completely shut down because of the small reward that might meet the discoverer of a new oil field. Proration orders were strictly carried out and new drilling was discouraged. Some large oil companies completely quit drilling with the exception of wells that had to be drilled to protect lease rights.

Oklahoma City showed some enormous wells, even as high as 90,000 bbls. per day in their initial stage and the average first day's production in that field was around 7,900 bbls. per well. At the close of the half-year period the field was believed to be 75 per cent drilled up, although outside tests may change this picture if one or more of them prove to be oil wells.

Kansas Has Bright Future

It looks at this time as if Kansas has a great future as an oil-producing region. Like other states, Kansas was in the doldrums as far as field operations went, but important discoveries and extensions were recorded in the first half of the year in the central and western counties. McPherson County is rich in oil that is yet unproduced. Lack of demand for crude kept pipe lines out of the new fields that would have been serving every part of it in normal times, and the Ritz-Canton area and Voshell Field in McPherson County were held down to a scanty pipe line outlet. This was especially the case with the Ritz-Canton Field. Fifty new oil wells were brought in averaging over 1,100 bbls. per well in first-day production, one well completed having shown an initial production of 3,316 bbls. in 12 hours. The Decker gas field in McPherson County was extended and wells of large production were brought in and shut in waiting for the completion of the big east-bound gas pipe lines under construction.

Eleven wells were completed along the Ellsworth arch, in Stafford, Rice and Ellsworth Counties, and each of the 11 tests opened what may be a field of some importance. There are no pipe lines into this new producing area, and none promised as long as conditions remain as they are, but it is believed the Ellsworth arch is an area of real importance to be developed when the industry needs more oil.

Good Wells in California

In California only 167 new oil wells were completed. They averaged over 1,100 bbls. per well in initial production. Eleven of the wells were completed in Kettleman Hills, and these averaged over 7,600 bbls. per well in first-day production. There was no great activity anywhere in the State. In Ventura Avenue 21 oil wells were completed; 27 in Long Beach, and 58 in the Playa Del Rey Field, a pool that had no existence in the first half of last year. In 15 fields of the State not a new oil well was completed. Only two new wells were recorded in Santa Fe Springs. The figures indicate the dullness in field operations in that State. Gasoline price wars and overproduction of crude caused prices to tumble and robbed operators of incentive to drill.

New Pools on Gulf Coast

In the Gulf Coast of Texas and Louisiana drilling operations dropped to the lowest level in years, but four new fields of commercial importance were opened and production was found on four salt domes which are being held for future exploitation. The Leesville Pool in La-Fourche Parish, Louisiana; Lockwood (or Clear Lake) in Fort Bend County, Texas; LaGrand Ecaille, Plaquemine Parish, Louisiana, and Bayou Choctaw, Iberville Parish, Louisiana, are the four new fields. Important extensions were recorded in Barbers Hill, Pierce Junction, Lockport and Refugio Fields in the half year. The oil wells in the Barbers Hill Field averaged 1,000 bbls. a day in initial production, which field made the best record of the year for big wells. Refugio's 48 new oil wells averaged about 370 bbls. per well in initial output.

Discoveries in Southwest Texas

In Southwest Texas, in spite of the relatively small number of wells drilled in that vast area, the first half of 1931 made a notable record for new pools and a number of deep sand discoveries were reported. Like their fellow operators in Kansas and the Gulf Coast, Southwest Texas oil men and companies that opened new pools did not pursue the discoveries with a lot of drilling. The times did not warrant it and the discoveries, for the most part, lie there unproductive but ready to pour out oil when it is needed and giving promise of being the center of a busy drilling campaign in the future. Wells were completed in 40 counties with Zapata leading with 84 and Guadalupe following with 46. Out of 401 wells completed, 219 were dry, a percentage of over 52. Only 36.9 per cent of the wells drilled were oil wells. Oil was found in new places in Goliad, Kerr, Jim Wells, Bastrop, Nueces, Live Oak, Duval and Bee Counties.

Old Texas Fields Very Quiet

It was a half year of dullness in the North Central Texas, West Texas and Texas Panhandle Fields. In the combined area the number of completions represented only 45 per cent of the number completed in the first half of last year and the initial production represented only 21 per cent of that uncovered in the same period of 1930. No important discoveries were made. The three important territories were very much affected by the overdevelopment of the East Texas fields and many wildcat drilling wells were shut down for much of the time during the first six months, while in the known fields little drilling was done compared with normal times.

In the Rockies

The whole Rocky Mountain area was quiet. The only important new field in the big area covering hundreds of miles, from the Texas Panhandle's north line to the Canadian border, is the Hobbs Pool in southeastern New Mexico and that field was so carefully and conservatively administered that very little drilling was done this year. Only 280 acres was added to the size of the pool. The five wells drilled in the Eunice Pool in Lea County proved that there was a large structure there but that it was not as rich in oil as the pay in the Hobbs Pool. A new gas field was opened in Moffat County, Colorado. The Osage Field in Wyoming was extended 2 miles west, and deeper pay was uncovered in the Big Muddy Field, resulting in a 350-bbl. well from the Lakota sand. Montana had no important discoveries. A 15-bbl. showing was found in a test on the Salt Valley Dome in Grand County, Utah, but the well is not yet regarded as a completion.

Mississippi's Gas Wells

In the Shreveport division, which includes the North Louisiana, Arkansas, Mississippi and the border counties in East Texas, no new oil pools were developed in the first half of the year. A 25,000,000-foot gasser was brought in in northeastern Shelby County, Texas. Mississippi had a busy half year for that territory. Nine gas wells in Hinds County, four in Rankin and two in Monroe Counties had a combined initial production of 330,500,000 feet. On the other hand, 27 dry holes were drilled in 12 counties in the State. No oil was uncovered.

New Gas Fields in East

All the oil fields east of the Mississippi River were quiet. The busiest area in the East was in the gas fields of Tioga County, Pennsylvania, and in Yates, Schuyler and Steuben Counties. New York. This is the most easterly oil and gas area in the United States. Many years ago a small pool of oil was found in Tioga County, which is still producing Pennsylvania grade crude, and Steuben County has long been a part of the Allegany oil field. It was known as the Gaines Pool. Last year the Dundee gas field west of the city of Watkins, N. Y., and the Tioga gas field were opened. They are producing from Oriskany sand at shallow depths in New York State—1,600 to 2,100 feet, but at about 4,200 feet in Tioga County. One well in the Tioga Field was estimated at 100,000,000 feet per day in its early stages. Drilling was pursued in Tioga and Bradford Counties, Pennsylvania, and in Steuben, Chemung, Yates, Schuyler and even more northerly counties near the famous Finger Lakes in New York. A large pipe line from Tioga County to Syracuse was started and another line to Williamsport, Pa., was scheduled before the close of the half year. The Standard Oil Co. of New Jersey thought so well of the Pennsylvania end of this gas field that one of its subsidiaries, the Lycoming Natural Gas Co., became the most important unit in the field.

It was plain to all in the industry at the close of the half year that little increase could be expected in drilling operations until the East Texas area is placed under the complete control of the state government of Texas. Such control would mean less work in that field of enormous initial production but vastly more field work in other parts of Texas and in every state in which oil is produced and where the individual completions would have far less effect on general conditions than new holes drilled in the Rusk-Gregg area.

SHUT DOWN WELLS LOWER GASOLINE OUTPUT

(Continued from Page 154)

ducers has been to reduce operating expenses to a minimum regardless of the decline in the production of crude oil and casinghead gas. Their attitude is that the returns from the additional crude oil and gas obtainable by frequent clean outs of the wells is not justified by the additional expense. This development, if it continues, means that many plants in the older fields will have to be abandoned or consolidated in line with the available gas supplies.

This situation is reflected in the May report of the Bureau of Mines which shows that the natural gasoline production in Oklahoma for the month totaled 42,600,000 gallons which compares with 54,000,000 gallons in May of last year despite the fact that the Oklahoma City production increased from 3,600,000 gallons in May, 1930, to 5,100,000 gallons in May of this year. The Texas production for the two months decreased from 42,100,000 gallons to 35,700,000 gallons. Kansas production dropped from 3,000,000 gallons to 2,500,000 gallons; Louisiana from 6,000,000 gallons to 4,100,000 gallons and Arkansas from 2,800,000 gallons to 2,500,000 gallons.

SINCLAIR'S EXPANSION PROGRAM MATURING

(Continued from Page 160)

855 or $2.96 a share on 608,328 shares in June quarter of 1930.

Net income for 12 months ended June 30 was $7,204,733 after above charges, equal to $10.78 a share on 668,201 shares of stock, comparing with $6,870,823 or $11.29 a share on 608,328 shares in 12 months ended June 30, 1930.

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 157)

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 29, 1931
(All gravities above those quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights, Seal Beach	Huntington Beach	Athens, Rosecrans, Dominguez	Torrance	Santa Fe Springs	Playa Del Rey*	E. Coyote, Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-12.9	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-12.9
14-14.9	....	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	....	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	....	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	....	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	....	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	....	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	....	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	....	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	....	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	....	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	....	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	....	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	....	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	....	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	....	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

STATE HAS RIGHT TO PROTECT OWNERSHIP

(Continued from Page 23)

that is in fact the present legal conception, namely: ownership in place. But the courts in those states have not carried the legal conception to its logical conclusion and conceded to those whose rights were violated, that is, whose oil and gas were extracted by others, a right of action in damages.

This failure no doubt is due not only to the difficulty of determining damages but to deference to practices of the industry that have grown out of the Pennsylvania rule of right of capture. When the right to injunction is conceded to the injured parties against those extracting or about to extract more than their fair legalized proportion from a common pool, that will serve as the greatest possible single deterrent against the chaotic type of oil field development that now prevails. Absence of this right of action in the past is responsible for our present condition.

Acreage Content Standard

If acreage content be fixed by legislative action as the legal standard of participation, we assume the right of action in damages or by injunction against excessive extraction would follow as a matter of course; also that the acreage content status would be as of the date the act became effective, and would not be retroactive. This would mean that for virgin pools hereafter discovered each owner would be entitled to that amount which nature placed in his land; but for pools partly depleted it would mean that unfair taking would be thereafter prohibited.

The question at once arises how and by whom would the acreage content be determined. In the first place such a statute would not require the estimates to be made with mathematical accuracy. Determination within reasonable bounds so that substantial justice would be done in the light of the facts then known would be regarded as fulfilling the requirements of the law. While as a practical proposition it would probably be the part of wisdom that the regulations provide for readjustments at later dates as further information is disclosed, yet determinations could be made final as the result of any given procedure provided by the statute.

Rights are constantly being brought to final adjudication by courts that involve greater uncertainty of facts than would be found in these cases, yet the right of the court to make adjudication is hardly questioned. When it is realized that in some instances a well on one-tenth of an acre is given as much daily outlet as an adjacent well on 10 acres which the legislature could, in recognition of its fairness, allow it can be seen what percentages of error might be allowable and yet afford such just distribution of products as would be considered by courts to be within the spirit of the statute.

If the proposed statute contains only broad general principles applicable to any conceivable pool or set of circumstances, and yet simple enough to be understood by every man and in harmony with the average man's idea of fundamental justice, its passage should not be difficult to procure—but when passed it will have set up a sound permanent standard and yet will provide the necessary flexibility to meet changing conditions.

Conditions Change Quickly

Engineers declare that every pool, and even every well, is an individual problem; that a variable set of natural conditions is found to exist in each case; and that the procedure must be adjustable to each particular combination of conditions. They also assert that scientific thought regarding production methods is in a state of rapid transition and that up-to-date methods of today will be obsolete tomorrow. Consequently any statute now passed should be sound and broad, setting forth only general principles, leaving details of procedure to administrative rules and regulations that may be easily changed, so that mere transitory ideas of methods might not be fixed permanently upon the industry. On the other hand, the determination of important basic principles should not be left to the discretion of administrative agencies. To do this would unduly subject the industry to the possibility of rapid and radical change and render its values uncertain.

At the present moment the only possible objection to the principle we have named would be that the relative amounts of oil and gas in each man's land are not readily ascertainable. However, if that be set as the ultimate objective that will save the industry, engineers will soon evolve methods that will determine it with sufficient accuracy to stand the scrutiny of courts at this time and do substantial justice to all parties. As better methods are found from time to time they can and will be applied unless the statute itself would prevent.

It is our conception that rules and regulations provided for in Principle No. 5 would set up ways and means of determining the relative amounts of oil and gas under each tract of land. We take it that violation of such rules would subject the violator to penalties. If this principle were to receive court approval, a clear-cut measure of correlative rights would be established toward which engineers could continue to work regardless of the changes from time to time that might come in operating technique.

It is also assumed a wise state agency would so design its rules and regulations that the operating plan for any particular pool would in fact be devised by the actual owners of the local pool acting collectively; so that there would always be back of local enforcement the support of a majority of local owners. Thus under the broad supervision of the state agency the petroleum industry itself and the owners of the property would actually operate the industry, being held, however, to certain broad general principles of property rights, and directed in harmony with public welfare.

Suitable for Proration

This principle of determining relative rights by acreage content would be equally applicable under proration or unit operation. Its application under proration would be remarkably simple. The owners, collectively, in any pool could be called upon to determine the number of acres in that particular pool that should be entitled to the full production of one well and the allowable production from that acreage unit should then be determined by the potential production of the well drilled on the unit, as set out in Article No. 1 of this series. Where fractional units were owned they would be given only fractional production, which fact in itself would induce small lot owners to seek consolidations—but if they were unable to effect consolidations they would not be precluded from drilling. They would, however, be permitted to take only a reduced yield measured by the principle described. Each owner might also be permitted to drill as many wells as he desires on his unit but the allowable percentage of his potential should be correspondingly divided. The well-known Oxford City case in Kansas, and the Yates Pool proration plan in Texas are familiar examples of the simplicity of applying the acreage content principle to proration.

Where unit operation of the pool is desired as contrasted with proration, so that the oil and gas can be brought out of the common reservoir at such places down on the structure as will best serve to utilize expulsive forces native to the reservoir,* calculation of the relative oil and gas content of each tract of land would be necessary while the oil and gas are yet in the reservoir. Under unit operation each owner's percentage of the total reservoir content could be delivered to him regardless of whether the well through which it came to the surface was drilled on his land or on that of another. This, however, would be a simple appraisal project provided the necessary data are made available. Especial attention is directed to a feature that should accompany such a plan, as proposed by Warner Clark in a communication quoted below.

We addressed inquiries to a number of recognized authorities on this subject for suggestions as to ways and means of calculating relative oil and gas content of different tracts in a common reservoir while the oil and gas remained in the reservoir, and requested opinions as to whether such calculation could be made within the degree of certainty above indicated. The replies were almost unanimous in the expressed opinion that such result could be accomplished. Some typical ones are quoted below.

Warner Clark, Assistant General Manager, Production Department, Standard Oil Company of California, San Francisco

I feel that oil is fundamentally a public resource, and that so far as the law permits, it should be so handled, but in as much as we have to deal with surface ownerships they should be made the unit basis of prorating reserves. Reserves, to my mind, are those accumulations of recoverable oil which underlay a surface ownership. Therefore the equities involved in a pool on a basis of surface ownership should be determined on the basis of reserves. The reserves can be calculated after the pool is outlined and its inherent characteristics determined.

Each parcel of land should be allowed a relative recovery consistent with the relation which its reserve or accumulations bear to the total reserve or accumulations in the pool. Practically, it is very hard to apply these principles because royalty interests in particular are anxious to realize on their values. Therefore, as soon as a general conception of the field is gained, it would be helpful to issue negotiable certificates or stock representing the different equities. Over the period in which the field was being outlined and the definite value of equities determined, the issue of certificates although less than the total value involved would prevent stampede drilling in order to realize on the various values.

Before leaving this point, I wish to say that as far as I am concerned, C. A. Young, secretary of the A. P. I. in Dallas, is responsible for this idea.

Without some such method of designating equities involved, I see no way of preventing a newly discovered field from being drilled, even if the relative equities are determined. There are sure to be persons involved who desire immediate cash and under the present system, even when the field is most definitely prorated, such realization is possible in an inverse ratio to the degree of curtailment. This brings a demand in each field for high production and the sum total of these demands exceeds consumption.

To my mind unit operation has been very carefully and intelligently considered and I am inclined to think the majority of oil men will agree upon the fundamental principles of unit operation, but I am also convinced that until the negotiable certificate has been added to the plan we shall have grave difficulty in keeping the supply in line with the demand.

David Donoghue, Consulting Geologist and Engineer, Fort Worth

After a discovery well has been drilled, by proper spacing of additional test wells, by coring of the entire thickness of the producing horizon, by testing the cores for porosity and saturation, by observing the flow from these tests, and measuring the pressures and gas-oil ratios, it is my opinion that a close estimate of the relative percentages of the amount of oil and gas under the various tracts within the producing area of the pool can be determined.

E. H. Griswold, Petroleum Engineer, Continental Oil Company, Ponca City

The original distribution of oil and gas in a pool and the relative proportions underlying each individual tract can be very closely determined by the drilling of several representative test wells and obtaining the following data before opening any of the wells for production:

(a) Thickness of producing horizon.
(b) Porosity of producing horizon.
(c) Water level.
(d) Bottom-hole rock pressures.
(e) Gas saturation.
(f) Oil saturation.

In the belief of the writer, the above method can be satisfactorily applied to all pools producing from sandstones. Its application to fields producing from limestones will be only in the most general and broad manner because of the eccentric and nonhomogeneous character of the producing formations.

F. H. Lahee, Chief Geologist, Sun Oil Company, Dallas, Tex.

With reference to Judge German's comment, mentioned by you, it is of course entirely feasible to make scientific estimates of the productivity of parts of a pool, provided a reasonable number of wells are drilled at selected locations, and provided cores of the producing sand are secured, and provided the behavior of these wells in producing oil or gas, is carefully studied. I believe, however, that first estimates should be revised at the end of a stipulated time, previously agreed upon, and these second estimates should again be revised after a similar interval. By this method, adopted in the case of the Van Pool, any erroneous estimates can subsequently be corrected, and financial adjustments can be made, so that all participants in the

pool will get their fair and just amount of oil in proportion to their holdings and in proportion to the actual productivity of their acreage.

We must get away from the absurdly uneconomical, unscientific method of developing a pool on the basis of drilling along property lines, and of trying either to save our own oil from our neighbors, or to steal as much oil as we can from our neighbors. An oil "pool" is a natural unit which cannot be properly or economically developed except by scientific methods of spacing, drilling and producing. It is a travesty on the industry that, with all the advances in scientific search for oil and scientific refining of oil, our usual procedure in developing a pool remains so antiquated and so unsound in principle.

Marvin Lee, Consulting Geologist, Wichita, Kans.

Present engineering and geological skill are usually able to outline the probable limits of a new pool. With such limits known or tentatively agreed upon, drilling will determine the actual boundaries. By fair valuation of included properties based on known factors of geology, engineering and recovery in similar areas, it should be possible to agree upon some method of unit operation that would be fair to all investors.

Ben E. Lindsly, Senior Petroleum Engineer, United States Bureau of Mines, Bartlesville

It is my opinion that sufficient data can be obtained through methods known at the present time "to estimate within reasonable bounds fertility of that portion of the producing formation which lies under the surface of the land of each proprietor." Until sufficient data have been acquired: (a) Every well should be carefully cored; (b) formation pressures and temperatures of each well should be determined; (c) formation samples at formation pressures, of the gas-saturated oil, and of the free gas in contact with the oil should be obtained for each well.

Although the technique indicated under (c) is not sufficiently developed at present to obtain the required data, progress on the problem of securing formation samples is being made. In lieu of bottom-hole samples, the writer believes that well head samples taken under the highest pressure possible, and then subjected to laboratory examination and temperatures corresponding to those existing underground, would lead to estimates (within reasonable bounds) of the characteristics of the oil and gas existing "under the surface of the land of each proprietor."

By combining data relative to the permeability and porosity, determined under (a), with data obtained under (b) and (c), the degree of oil and gas saturation in the producing formation underlying certain areas can be estimated. By knowing the thickness of the producing formation these data can be converted into actual quantities—barrels of oil and cubic feet of gas underlying each tract. Having estimated the quantities of oil and gas under each tract, the third important item relates to the propulsion energy contained in the gas-saturated oil and the free gas underlying each tract. Reasonable estimates of this item can be made from the data outlined above, under (a), (b) and (c). By modifying the estimates determined from the above original and fundamental data with later estimates from data obtained by operating wells at definite bottom-hole pressures and standardized producing strings, it is believed that in most cases, fairly accurate estimates (estimates well within those specified by Judge German) can be made of the relative amounts of oil, gas and propulsive energy underlying each lease. Also that such estimates can be made fairly early in the life of an oil pool—possibly when it is not more than 10 or 15 per cent depleted.

A. F. Melcher, Consulting Engineer, Tulsa

In my opinion it is possible to determine relative productivity of individual tracts in a common pool within the limits of accuracy described by Judge German by means of wells properly spaced, careful observation of oil and gas flow as drilling progresses, and the use of other field data such as: Condition of well at the time of production, laboratory data on analysis of cores, laboratory data on analysis of gas and oil, and other helps that might be mentioned. This statement applies especially to tracts where the production is from sands or sandstones. It would be more difficult by this method to determine relative productivity of individual tracts where the production is from a limestone, especially a cavernous limestone.

Wallace Pratt, Geologist, Vice President of Humble Oil & Refining Company, Houston

I am glad to advise you of my conviction that the ability of a property to produce oil, or of an oil pool to produce oil, can be determined by practical methods accurately enough that the approximate total volume and the approximate percentages for the several leaseholds, of which the pool is comprised, can be set up in advance of actual commercial production in the pool. Different pools may require different methods of exploration for this purpose. Test wells must be drilled, adequate core records maintained, and production tests carried out, if producing properties are to be satisfactorily evaluated. It may become necessary in some cases to adjust equities after commercial exploitation has been inaugurated, and provision should always be made for such adjustment, but this requirement does not interfere seriously with satisfactory evaluation of oil pools and oil properties within oil pools.

A. C. Rubel, Petroleum Engineer, Union Oil Company of California, Los Angeles

While there is no method of determining with mathematical accuracy the value of any piece of land in advance of actual production, it is, I believe, possible to determine relative values with sufficient accuracy to meet the requirements set by Judge German. I believe it more or less axiomatic that, given equal oil content per cubic foot of sand, the potential productivity of an area in any field as compared to any other area in that same field is directly proportional to the sand thickness open to the well. We have accurate means of determining the sand thickness by coring and as suggested by Doctor Melcher we also have means of examining these cores to ascertain the porosity saturation or other factors which determine the oil content. It would, therefore, seem that we have available all factors necessary to an assignment of relative values when sufficient wells are drilled to delineate the pool. The application of such values would, of course, be subject to adjustment as development in the field progressed. A development program in the early stages of the pool designed to contribute the maximum of information along these lines should make such a method applicable to unit operations.

J. B. Umpleby, Consulting Geologist and Engineer, Oklahoma City

I believe that engineers would agree in saying that a plan of prospecting and determination might be evolved whereby a reasonably close estimate of the relative quantities of oil and gas underlying adjacent tracts in a common pool might be determined.

Methods Can Be Devised

From the foregoing expressions it is clear that engineers are of the opinion that methods can be devised whereby the relative content of adjacent tracts in a common pool can be determined with justice to all parties. To this time there has been no great need of developing accurate technique on this problem but if that becomes a regular procedure in oil field development, engineers will soon evolve methods for determining these facts with a very great degree of reliability, and sufficiently close to do substantial justice to all parties. As better methods are found from time to time they can and will be applied.

CRUDE OIL PRICE CHANGES

(Continued from Page 158)

old Central West fields, North Louisiana and Arkansas and on Monday, July 27, the Sinclair Refining Co. topped all other buyers with a flat price of 50 cents per barrel for Oklahoma crude. The company buys mainly in Oklahoma City and its price was 10 cents per barrel above the highest other bidder in that field.

The Texas Company on July 23 posted new prices in Texas and North Louisiana. In the Gulf Coast pools excepting Markham, it posted 31 cents for crude below 25 gravity, 32 for 25 gravity and 1 cent additional for each degree upward to 40 and above, at 47 cents. In North Central and East Central Texas and North Louisiana it posted 35 cents for oil below 36 gravity and 40 cents for 36 gravity and above. Gray County, Texas, 30 cents; Carson and Hutchinson Counties, 27 cents; West Texas, 25 cents; Mirando, 44 cents; Pettus, 50 cents; Salt Flat, 37 cents; and Darst Creek, 37 cents. On July 24 it posted Oklahoma 35 cents for crude below 36 gravity and 40 cents for 36 and above.

The Humble Oil & Refining Co. effective July 24 posted prices of 35 cents for below 36 gravity and 40 cents for 36 gravity and above for Ranger, North Texas, Moran, Mexia, Powell, Boggy Creek, Richland, Wortham and Currie crudes; 30 cents for Gray County crude; 27 cents for Hutchinson and Carson Counties crude; 25 cents for Crane, Upton, Crockett, Ector, Howard, Glasscock, Pecos, Winkler Counties in Texas and Lea County, New Mexico. In the Gulf Coast the Humble posted a gravity scale in Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio light: Below 25 gravity, 40 cents; 25 gravity, 41 cents, with a 1-cent differential upward to 35 and above at 51 cents. Refugio heavy was posted at 44 cents; Mirando at 44 cents; Pettus, 50 cents; Salt Flat, 37 cents; Darst Creek, 37 cents. The company does not post in the East Texas Field. The Gulf Pipe Line Co. met the Humble prices.

On July 24 the H. F. Wilcox Oil & Gas Co. posted 30 cents per barrel in Gray County, Texas, meeting the Humble's price.

On July 24 the Magnolia Petroleum posted Mexia, Wortham, Corsicana light and Panola County and Lytton Springs and Thrall 40 cents per barrel.

On July 24 the Standard Oil Co. of Louisiana posted the following prices for Caddo, Homer, Haynesville, Bull Bayou, Sabine, Crichton, DeSoto, Sarepta and Carterville, La., and El Dorado, Ark.: Below 29 gravity, 30 cents; 29 degrees, 31 cents with 1 cent added for each degree up to and including 40 and above at 42 cents; also Smackover, Ark., 30 cents and Urbana, Ark., 20 cents.

The Carter Oil Co., posting in Kansas and Oklahoma, boosted the price as follows: Below 28 degrees, 27 cents; 28 degrees, 30 cents with 1 cent added for each degree up to and including 40 and above at 42 cents. The Gypsy Oil Co., Barnsdall Oil Co., Pure Oil Co., Mid-Continent Petroleum Corp., Empire Oil & Refining Co.; Skelly Oil Co. (in Kansas) and Vickers Petroleum Co. and Derby Oil & Refining Co. (in Kansas) adopted the Carter prices on the same day. On July 24 the Stanolind Crude Oil Purchasing Co. posted as follows in Kansas, Oklahoma, North Central Texas and East Central Texas: Below 29 degrees, 30 cents; 29 degrees, 31 cents with 1 cent added for each degree up to and including 40 and above at 42 cents. This schedule was adopted by Tidal Refining Co., Continental Oil Co., and Kanotex Refining Co.

The Ohio Oil Co. on July 25 posted Elk Basin, Wyo., 65 cents; Grass Creek, Wyo., 65 cents; Big Muddy, Wyo., 45 cents; Lance Creek, Wyo., 80 cents; Rock Creek, Wyo., 50 cents; Sunburst, Mont., 80 cents.

The Ohio Oil Co. posted increases in the old Central West as follows: Lima advanced to 70 cents; Indiana, 35 cents; Illinois, 55 cents; Princeton, 55 cents; Wooster, 73 cents; and Western Kentucky, 50 cents. These were 15-cent increases in each case.

The Ashland Refining Co., Ashland, Ky., posted Somerset oil in Cumberland Pipe Line lines at 55 cents, a 15-cent increase.

On July 24 the Imperial Refining Co., Toronto, Ontario, advanced Ontario crude 15 cents per barrel, paying $1.75 in Petrolia and $1.82 in Oil Springs.

On July 25 the Pure Oil Co. advanced Midland, Mich., crude 20 cents to a new price of 57 cents.

On July 23 The Texas Company posted North Louisiana crude 36 degrees and above 40 cents; below 36 degrees, 35 cents. It made no change in Arkansas, and Smackover remains at 37 cents per barrel.

TEMPORARY EQUIPMENT PUT INTO OPERATION

HOUSTON, Tex., July 27.—Temporary pumping equipment has been put in operation by the Texas Pipe Line Co. at San Augustine, Tex., the junction of the company's East Texas and North Louisiana lines to Port Arthur, following destruction of the station by fire July 19. This is enabling the company to resume full operation of the system pending rebuilding of a permanent station, which may take several months. After the fire and before the installation of temporary pumping equipment consisting of ordinary steam driven line pumps, the crude had to be pumped through the station to Jasper.

The fire destroyed the pumping plant, although the power plant was not damaged. The new pumping plant is being rebuilt on a larger and more modern basis. It will include four large Diesel units. Formerly there was only one Diesel unit with the remainder of the equipment steam driven. At the same time, a new Diesel unit will be built at the Jasper station and when both new stations are completed the company will be able to boost its East Texas runs to 60,000 bbls. daily, exclusive of runs by way of Corsicana to Port Arthur.

STERLING TELLS SENATE OIL SITUATION IS BAD

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oil in East Texas the price naturally went down.

Governor Sterling would not assent to Mr. Pollard's statement that gasoline still is as high as it was when oil sold for $1 a barrel. He gave the figures on gasoline at 13 cents, deducting tax, transportation and other charges, to show that only 1½ cents a gallon is left to the refiner. He said lubricating oil sales make the best business and the filling station operators were disappointed when only gasoline was purchased.

Mr. Pollard read from a federal report that the Humble pipe line made $18,800,000 in 1930, or 40 per cent; the Magnolia $10,760,000, a net dividend of 46 per cent, and the Gulf $10,766,000, or 33.8 per cent; The Texas Company $9,662,000, or 93 per cent, and in Oklahoma 100 per cent. The average net profit was 12 cents a barrel.

"Only the pipe lines are making profits, while the production and refining end is losing," said Mr. Pollard, "and as the pipe lines are owned by the large companies it leaves the little fellows with the losing end of the business."

Governor Sterling replied that possibly the pipe line rates should be reduced and that he was against overcharging.

Oil Tariff Favored

Governor Sterling said a tariff on oil should be imposed, sufficiently high to discourage the importation of crude.

"If foreign oil is excluded it would enhance the domestic market and raise the price of oil in storage," said Mr. Woodruff, "and I ask if that is a sound public policy? Oil is indispensable, so is it a good policy to exhaust Texas oil and then put us at the mercy of Venezuelan reserves?"

"That is one reason I favor a commission to conserve the natural resources," said the governor. "Ten years ago a geologist told me the oil supply in Texas would not last five years and you know the situation today. The purpose is to preserve some oil to future generations."

Many questions were asked by Senator Woodruff designed to show that in former years gasoline sold at low prices in rate wars which, he charged, was the major companies' way of freezing out the independents until the majors now own 90 per cent of the retailing business in Texas. Pressed as to whether that was good public policy, Governor Sterling said there were too many filing stations in Texas, three or four to one, and that it was impracticable to separate the retailing end from the remainder of the oil business. There probably were too many producers, too many refiners and too many retailers, he said.

Mr. Woodruff and Governor Sterling exchanged divergent views as to the definitions of "independents" and "majors," Governor Sterling saying all now are "dependents."

Governor Sterling knew of no combination of oil companies to control prices and never had any agreements when he was in the business. Posting the same prices by the different companies was caused by the laws of competition, as those in the same business have the same price basis or fall out. The governor knew of no simultaneous fixing of gasoline prices.

Mr. Holmes Welcomes Antitrust Laws

Ralph C. Holmes of New York, president of The Texas Company, which, he said, is an independent concern with 80,000 stockholders and none of its stock dominated by the Standard or any other group, testified he was not opposed to antitrust laws but rather favored them.

East Texas was blamed for the oil price there. Mr. Holmes said that field had made its own price by producing its oil at random and selling it at any price obtainable. This caused producers to cut each other's prices until a low level was reached. He said better prices in the orderly operated fields were fair and to be expected and not as a punishment to East Texas.

Mr. Holmes said legislation is desirable to save the situation, whether based on waste or market demand or both.

"Mine is a large company and we can stand any law that is based on reason," Mr. Holmes said, "and I hope this State will strengthen its control and thus cooperate with other states and the federal Government, if necessary, and we can join with others in bringing about relief and conservation."

Mr. Holmes explained how competition in a flush, unrestricted field brings down the price. He told how posted prices are made, competitors following each other on a basis of the necessities of the company that changed the price.

Senator Pollard quoted a published statement telling of increases in price by The Texas Company which omitted East Texas. "Why?" the witness was asked.

"We cannot pay more for oil than the producers are willing to sell it for," was the answer. "They are selling everywhere and they have made the price. We cannot post prices under those conditions and we cannot neglect our customers in other fields."

The witness said he was willing to buy at the price at which he could take oil out of storage if there was any dependability. He was willing to pay any fair price with control, as is done in Oklahoma and other states regulating production. He said his company would be satisfied with the Woodward bill.

As to 180 wells unconnected in East Texas, the policy of his company, Mr. Holmes said, was not to connect with wells refusing to obey proration orders. He could appreciate that some have suffered because of the acts of others, he said.

Didn't Make the Prices

"We consider it our duty to observe the orders of the Railroad Commission, and it is true we have taken advantage of the distressed prices but we did not make them. It would be unfair for a pipe line company to run its oil ahead of its offset leases under orderly production, but in disorderly production it is different and a company should run its own oil preferentially."

Mr. Holmes admitted it would be good business to use stored oil bought at $1 and $1.50 a barrel and replace it with 10-cent oil to be held until the price goes back to $1. Reduction to low levels was not a punishment, he said, but resulted from overproduction as storage was filled.

If a bill were enacted the price would rise, Mr. Holmes said, and it would be around the most of production, about $1 a barrel. Then The Texas Company would pay the same price for East Texas as for North Texas oil.

"No discrimination prevails against East Texas when the oil is bought at the price the producer is willing to sell it," said Mr. Holmes.

Senator DeBerry asked Mr. Holmes questions designed to show that the whole effect is to raise the price and make more money for the companies as against others. Mr. Holmes explained that his company had shut down 200,000 bbls. daily of its own production and refused to buy cheap foreign oil in order to continue its large purchases in this country.

There is no understanding among the major companies regarding prices on gasoline, Mr. Holmes said. He did not believe the major companies owned or controlled more than 60 per cent of the retail filling stations. One of the factors in price demoralization was the fact that independent filling stations would purchase from the majors, slice the profits and retail at a lower price than the majors did in their own stations.

Mr. Holmes said he had not said he favored price fixing through any governmental order or agency, and did not advocate it now.

Entitled to Better Price

Mr. Holmes took the position that North Texas was entitled to a better price for its oil and was observing proration orders strictly and practicing conservation.

He said there was a place for the little fellow in the oil business "and our sympathy is with him when he is right."

Mr. Holmes said there never would be a chance for the purchasing companies to control the price, as competition between all classes of companies, large, small, major, independent and Standard, were keen in drilling, transporting, marketing and refining. Too many were in the business to permit price fixing, he said, and the companies would perfer to pay a good price for oil rather than purchase it at distress figures.

Senator Purl asked if there would be any objection to requiring refineries to modernize their plants to recover the maximum amount of gasoline and thus effect perfect conservation.

"We are so strong for conservation that we would not oppose, though I do not think any hardships should be imposed," was the answer.

Mr. Holmes inveighed against the duplication of filling stations; saying they are far beyond the number needed and that unless this duplication is stopped the nation will suffer commercially. In Moscow, a city of 2,000,000, there are probably 20 filling stations compared with 20,000 to a city of that size in this country.

He warned that when Russia got on her feet our commerce would suffer if this duplication in retailing merchandise is not stopped. Mr. Holmes was against a tariff on oil.

Mr. Foran Tells of Conditions

E. V. Foran, petroleum engineer and technical adviser to the central proration committee, testified as to conditions in East Texas. Equal and orderly withdrawals hold back the water and prolong the life of the field many years, he said, besides saving increased quantities of oil.

Water already has entered the East Texas Field. Wells in Joiner Field have stopped flowing because of the reduced reservoir pressure. In Yates, under orderly production, practically the same pressure continues, notwithstanding that 100,000,000 bbls. of oil have been produced. The field is four years old and production costs there are lowest. Voluntary proration and rigid adherence did it, Mr. Foran said. The Yates Field has 400 wells to its 20,000 acres. In the Winkler Field, "billions and billions of feet of gas were wasted in the rush to get oil," causing much oil loss.

Mr. Foran said there was only a limited amount of gas in the East Texas Field, therefore it should be conserved In some places the gas-oil ratio had risen and ultimately the wells stopped flowing. The gas pressure had gradually fallen. Standard pumping equipment already was being installed in the Kilgore area, which Mr. Foran said was a great surprise, though water was appearing elsewhere in the field.

Unit Operation Ideal

The witness said the operation of a pool as a unit would be ideal and produce conservation preventing waste. "A unitized field is the object of conservation," Mr. Foran said, "even though it could not be brought about immediately." Also, he said, a start should be made with the bill as the first step toward conservation and the bill should be tried and future action come from its experience. "It certainly would be an improvement on the present deplorable conditions in East Texas," he added.

Mr. Foran told how wide open production in East Texas brought in water prematurely, even in wells drilled only a short distance into the sand. Penalties should be imposed to compel operators to observe ratable production, "as one violator can do immense damage to property other than his own. He causes water to appear in other wells by his refusal to observe ratable production, either as ordered by the commission or by the field agreement."

"Pools must be considered as a whole in conservation," the witness said, "and all wells must respond to uniform practices, thereby retaining to each well its proportionate rights and production and cause the largest ultimate recovery of oil in the field. Ratable production does it and subtracts nothing from any particular well. All wells produce alike proportionately."

R. L. Batts, Austin, chairman of the board of regents of the University of Texas, testified four wells now operated on university land in Reagan County, all in the 8,500-8,900-foot stratum, are dissipating 110,000,000 cubic feet of gas daily. He submitted sections proposed by the university land leasing board for inclusion in the conservation statute to give the State authority to shut down such wells on state-owned land until a use can be found for the fuel gas. This amendment is patterned after the California Sharkey law.

ANOTHER BILL FOR OIL INDUSTRY

AUSTIN, Tex., July 28.—A bill which would declare oil storage tanks and facilities public utilities, and designate all those engaged in the buying of crude oil as common purchasers and placing them under supervision of the Texas Railroad Commission, has been introduced in the House by Reps. Davis, Barron, Young and Wagstaff. The bill would require the pipe line and storage operators to file $25,000 bonds for compliance with the law. It would give the Railroad Commission additional power to require the storage companies to build additional facilities, and to regulate the rates of the utilities.

LEGISLATORS PROBE TEXAS OIL SITUATION

(Continued from Page 21)

refining from the producing branch would work injustices, East Texas is getting the lowest price in history for oil because it violated all the rules in its overproduction splurge, he said.

Mr. Pennington told the Senate he is against the Woodward-Wagstaff conservation commission bill, but could not point out the particular thing he objected to.

Mr. Swanson foresaw a 3 per cent prospective increase in gasoline and refined products requirements for the last half of this year over the last half of 1930. Texas production of oil is above requirements now, he said. Commissioner Smith, after reciting that Governor Sterling, the two oil company presidents, Chairman Batts of the University board and others were supporting the new commission plan, and that "to cap the whole scheme they turned loose Nat Neff with a flow of words on us, his official associates, in an attack on our official records," said:

"We hope Pat Neff will feel happy with his new-found friends of the oil fraternity, but as far as we are concerned, we are proud of the fact that we have not found favor with this Standard Oil crowd, and we thank God for courage to say so.

"The legislature ought to weigh deeply and consider well the source from whence this demand comes before its powers are used to remove the duly-elected servants of the people now or hereafter."

E. V. Foran, technical adviser of the central proration committee, was on the stand in the Senate for about two days discussing physical aspects of the East Texas Field.

W. Scott Heywood, Jennings, La., member of the oil states advisory counsel, and S. B. Dabney, Houston, author of the bill to protect leases and prevent offset

drilling and losses from offsetting, testified before the senate.

Underwood Nazro of the Gulf company testified in the Texas senate's oil inquiry this morning. Price fluctuations are nothing new, he said. He believes the State has ample laws to prevent physical waste and that "it would be a great mistake to do anything about price."

His company took the position that the past so-called proration orders were economically unsound and bound to be a failure, he testified. His company has not for four years drilled any wells except those necessary to protect itself, he said. The gas-oil ratio bill would reduce production nearly 20 per cent, he continued, and "would have some effect on price."

FARISH SCOUTS IDEA HUMBLE CONTROLS PRICE

(Continued from Page 21)

afforded a protection to royalty owners not familiar with the oil business. Tendency to merge not alone in the oil business, but in all industry was more pronounced during periods of depression as an effort to survive, he said.

Consumption Ahead of Production

Prior to December, 1924, Mr. Farish said, consumption was ahead of production except for local instances of overproduction of a temporary nature, which always were taken care of by storage and consumption of petroleum products continually increased. December 19, 1924, he said, "President Coolidge stepped into the oil business when he wrote a letter creating the Federal Oil Conservation Board."

The President's stand the witness characterized as an unfair charge of responsibility for conditions. Since that time no industry had been so much in the glare of publicity, he said. In 1927 there came a new period of real overproduction with the development of Seminole in Oklahoma and Yates and Winkler Counties in Texas and the year witnessed the birth of proration to control production.

For the first time in history, the witness said, there was a real decrease of consumption of petroleum products. There had been a 2½ per cent decline in the consumption of gasoline and a 7½ per cent decline in the consumption of all products of petroleum during the first six months of 1931. There was a 5 per cent increase in gasoline consumption in 1930.

The United States was consuming about 2 bbls. of crude oil to one by the rest of the world and the production ratio was about the same, Mr. Farish said, whereas the known reserves underneath United States soil amount to about 10,000,000,000 bbls. against 20,000,000,000 bbls. in the rest of the world, an exact reversal of the ratio. He said the only uncontrolled oil production in the world was in Texas and Rumania. Prices made on the Gulf basis controlled gasoline prices the world over and that was now governed by distressed and chaotic conditions in East Texas.

The oil industry had been taught definitely that more oil may be captured and produced at a greater profit and at less cost through controlled production.

History of Proration Recounted

Mr. Farish described the history of proration in Texas since the development of the Yates Field in 1927, when he offered ratable taking for the Humble Pipe Line Co. and orderly production was instituted. Reasonable success had attended proration in West Texas but there had been failure in the Panhandle and the Gulf Coast before East Texas opened, he said. The industry would be in a fairly good condition now except for East Texas. He gave the opinion, on the company's estimates, that between 550,000 and 600,000 bbls. of oil daily was being produced in East Texas. Official reports showed only about 450,000 bbls.

The witness estimated that unit operation of oil fields with conservation of oil and gas ratio would permit production at one-fourth of current costs. He traced the fluctuations of posted prices of crude oil and the reduction in prices of gasoline and read into the record a statement made by the Humble company in posting a reduced price for crude oil in January, 1930, when tank wagon gasoline dropped to 6½ cents. A subsequent 10-cent advance was posted in April, when gasoline was advanced from 6½ to 7 cents a gallon wholesale. The reduction and advance were met by all purchasers.

The price of 38 gravity oil was $1.37 before the 10-cent advance in April. By October, wholesale gasoline was reduced to 5 cents a gallon and another reduction was posted. Later the wholesale gasoline price in the Mid-Continent area fell to 2½ cents a gallon, forcing a still sharper reduction in crude prices and resulting in demoralization before East Texas oil became a factor.

At a meeting in Tyler in January, 1931, Mr. Farish said, the Humble offered to enter the field as a purchaser on condition that orderly development would be carried out under Railroad Commission proration orders. He said conditions grew worse and on April 21, 1931, the Humble, hoping for orderly production, posted a price equal to the Mid-Continent schedule amounting to 65 cents a barrel for gravities produced in East Texas. There was continued demoralization and in June the Humble withdrew its posting of a price.

The Humble readjusted its pipe line rates, representing an average reduction of 25 per cent over its whole area.

Matter for State Control

The power to regulate production to prevent waste was a matter for state and not federal control, Mr. Farish said, adding that this view was shared by every agency or board that had made an investigation. The Humble, he said, was essentially a Texas company, was about the only major company chartered in Texas and its field of operations was almost exclusively Texan. The company was not a large marketer of retail products and sold only about 7 per cent of the gasoline sold in the State, and about 2½ per cent of the lubricating oil. The company bought about 2½ bbls. of oil for every barrel it produced. The company had been a constant advocate of conservation and more power for state enforcement agency. It had stood for ratable taking and ratable purchasing. Whether it be called "market demand" or something else, Mr. Farish said restriction of production to consumptive demand was an essential to orderliness.

Mr. Farish said the Humble could have bought crude oil at 20 cents a barrel during 26 days that it observed a posted price of 76 cents, following April 21. He said some purchasers were paying low prices even then, but that the Humble maintained the price to "try to keep the house from falling."

"Are you still trying to keep the price up?" Mr. Satterwhite asked, and Mr. Farish answered: "No. The house already has fallen in."

Mr. Farish estimated that there were 200,000,000 bbls. of unused storage facilities in the United States in addition to 650,000,000 bbls. of crude and refined products in storage, but the unused storage facilities were not available in the main to East Texas.

The witness said his company was using about 15,000 bbls. a day in its own refineries and producing 90,000 bbls. and buying 150,000 bbls. which it sold to allied companies. He said prices paid for crude always had been fixed by the board of directors of the company. He said there never had been any price fixing and that in his opinion there was no widespread belief that a few big companies got together and fixed prices. "It would be impossible for six or seven to fix oil prices as it has been for the Federal Farm Board to fix the price of wheat."

The witness believed that by orderly production in East Texas 50 per cent more oil might be produced at half the present cost. As a legislative duty, Mr. Farish said he believed the oil operator should be protected in his property rights just as other property owners were protected, to prevent the "theft of oil from under a man's land." A conservation law, too, should prevent waste in production.

Mr. Penn Describes Conditions

Robert R. Penn, of Dallas, Tex., president of the Penn Oil Co., described conditions in the East Texas oil fields where he said the breakdown and disorderly condition were likely to reduce earnings of the field from $1,500,000,000 to between $200,000,000 and $300,000,000. It was his belief that there was 2,000,000,000 to 3,000,000,000 bbls. of oil in the ground there and that next to Kettleman Hills, California, it was the largest oil field in the world. Because of price reductions, the State stood to lose $200,000,000 in taxes, he said. The confusion that had resulted in the East Texas scramble was costing the industry $2,000,000 a day. This condition had come because of the greed of a few persons to reap quick profits from big runs of oil.

Mr. Penn had no blame for the Railroad Commission and expressed wonder that an elective commission of members inexperienced in the oil industry, subjected to political influences, could do anything.

As a remedy, Mr. Penn recommended legislation that would apply proportionally to oil fields during flush protion. Proration had failed in such places as the Oklahoma City Pool because it was not applied immediately. He approved the bill drafted for the Texas Oil Emergency Committee and urged the need for strengthening the common purchaser act and complete enforcement of ratable takings. In reply to questions Mr. Penn said it was his opinion that the law should protect every owner in the right to capture the oil under his land.

Running Around Demoralized

Though there was greater production in the fall of 1929, Mr. Penn said, prices had been driven down to a dime a barrel because of unrestrained production and "men running around in a demoralized condition." First posting of price was in April of this year by the Magnolia company at 67 cents a barrel for 40 gravity oil. He did not know whether that was a lower price than was posted elsewhere. In reference to recommendations of the central committee in March, Mr. Penn said it did not accept nominations from sources which the technical advisor, after investigation, believed could not handle the amount of oil named.

On the matter of profits of the major companies Mr. Penn said that profit sheets showed the companies had made the greatest returns in those years when the price of oil had been high. Mr. Penn said he had proposed the formation of a huge corporation to operate the East Texas oil field. He said he favored such an organization under present circumstances.

The witness described unitization of oil pools as the operation of an area as a single enterprise, dividing the returns, instead of operating competing leases. He said he had seen no evidence of an effort to form an oil monopoly and did not think that the major companies were trying to crush independent operators. On the other hand, he said, if the major companies had not furnished facilities for the independents the latter would have gone out of business a long time ago. Prices of oil were governed largely, he said, by the price that gasoline may be sold for on the Eastern Seaboard, where the purchaser demand was strong and there was little production. He expressed the belief that it would be more costly to divorce pipe lines from producing organizations. He favored a law giving each owner a common ownership in a pool commensurate with his acreage.

The witness challenged the view that price reductions had been forced by design and said the major oil companies had kept prices up longer, perhaps, than was advisable. He held to the belief, he said, that the interests of independents and major companies were served by the same causes and that when one was prosperous the other was. He said he understood the Humble had been losing at the rate of $1,500,000 a month. He said he had been told by a banker in East Texas that 100,000 bbls. recently was sold at the well at 2½ cents a barrel. The banker said the transaction passed through his bank.

Former Governor Neff on Stand

Pat M. Neff, former governor, roused the House to its first hearty laugh in his onslaught against his two colleagues, the majority group of the state railroad commission. "There hasn't even been an intelligent gesture toward enforcement," said Mr. Neff. "We've just prorated those who wanted proration.

"Why the failure of conservation?

"Physical inactivity, mental inertness, working along the lines of least resistance," he vehemently replied. And cheers came from a sprinkling of the 70-odd House members who heard him.

That was his answer before the House to testimony of Chairman C. V. Terrell and Commissioner Lon A. Smith, in his long controversy with them over oil and other things. He was aggressive throughout. He did not believe in trying proration cases "in mass meetings or in the newspapers either." He disapproved wasting $4 worth of gas to produce a dollar's worth of oil. He thought a new law would be helpful, defining waste, and getting the railroad commission away from the price idea in proration.

A new commission might be all right, in his opinion. Plenty of ways exist now to enforce conservation "if only the railroad commission would do it."

TIME SAVED MAY BE TURNED INTO MONEY

(Continued from Page 153)

cated and built, therefore, the distributor is more or less limited to a fixed trading area which he can serve profitably. The only way to enlarge this area and still maintain profitable deliveries is to increase the selling margin on his products or to lower the delivery cost. And since it is almost impossible for the average distributor to increase his margin in the face of competition, the only answer to wider territorial coverage is lower delivery cost. Time savings which permit more deliveries to be made each working day will lower the cost of deliveries. And if new, profitable sales territories have opened up just beyond the limits of the distributor's profitable delivery area, time savings on his present trucks will oftentimes enable him to tap the new market with greater assurance of profitable sales.

Time savings and consequent lower delivery costs can be turned to dollars and cents profits in still another way—by offering better service to profitable, worthwhile prospects. The fact that truck time and capacity are available for special demands on delivery service will go far toward building and maintaining substantial and profitable relations with dealers. The dealer who demands an occasional rush delivery or more frequent deliveries at all times is little concerned with the fact that the distributor's trucks are not available to render the service demanded. His concern is to get the service he demands. Time savings which provide extra truck time and capacity to fulfill reasonable service demands of profitable customers are therefore a dollars and cents asset to the distributor—especially if his trade is largely made up of independent retailers.

Time savings are doubly profitable when lowered delivery cost and available truck time are used as a basis for sound sales expansion.

GAS FOR CELOTEX

Contracts have just been signed to furnish gas fuel for the entire plant of the Celotex Co. at Marrero, La., near New Orleans. The change from oil to gas was made possible by the recent extension of the Louisiana Power & Light Co.'s pipe line from Monroe, La., to New Orleans. Contract is for three years and, at minimum rates of consumption, will amount to not less than $700,000.

GASOLINE WELL IN BACK YARD

John Davidson of Hay Springs, Neb., has a gasoline well in his back yard. Recently a well used on his lot for irrigating the garden and lawn started an amber fluid. This burns readily when a match is applied and several have used it in their automobiles with good results, except that it was slower in starting. A careful check has been made for any possible leaks from service stations, but so far none has been found.

NATURAL GASOLINE LOSS LESS THAN STRAIGHTRUN

(Continued from Page 154)

than the natural gasoline cost at the plants. Although natural gasoline prices have been consistently under the prevailing market for U. S. Motor gasoline so far this year at Mid-Continent points, many coastal buyers due to the low price received for their finished gasoline did not look with the usual favor on natural gasoline.

In contrast to the coastal situation, most of the refineries in the inland areas, particularly those within the Mid-Continent, have added to their purchases of natural gasoline this year. The refiners in Oklahoma, Kansas and Missouri increased their purchases for the two five-month periods from 2,040,000 bbls. to 2,157,000 bbls. The Inland Texas group increased its purchases from 1,087,000 bbls. to 1,427,000 bbls. Natural gasoline is available to refineries in these areas at relatively low transportation costs. The Indiana, Illinois and Kentucky group of refiners increased their purchases from 1,144,000 bbls. to 1,156,000 bbls.

In California, where there has been a large decline in crude oil run to stills due to a curtailment program, refinery purchases of natural gasoline dropped from 5,125,000 bbls. the first five months of 1930 to 4,997,000 bbls. the same period this year. This is less than the decline in production.

The accompanying table gives the total production of refinery gasoline, cracked gasoline, natural gasoline and straightrun gasoline.

MASS MEETING URGES SHUT DOWN OF WELLS

At a mass meeting called by the Independent Petroleum Association of America, Mid-Continent Royalty Owners Association and the stripper well committee, and held in the Crystal ballroom of the Mayo Hotel on the night of July 27, a mixed crowd of about 1,050 people listened to many speeches regarding the present difficulties faced by the petroleum industry. Particular stress was laid upon the necessity of the independent oil producer to shut in his production until such time as it was possible for him to sell it for a reasonable profit.

Many speakers urged that a movement be continued to secure a tariff on oil into the United States, but it was pointed out by others that if the independent awaits the meeting of the next Congress in December and the enactment of tariff legislation aimed to give him relief and did nothing constructive himself in the meantime he would not need any oil tariff because he would no longer be in the oil business.

It was pointed out that the shutdown that has been in effect in the Oklahoma City and other fields in this State and Kansas has already brought about some increase in the price of crude and it was urged that it be continued until at least a dollar a barrel price is secured.

Several resolutions looking to this end were presented and adopted as well as a telegram to be sent to the governors of the States of Oklahoma, Kansas and Texas asking their assistance in this movement and thanking them for the aid already given in enacting legislation to benefit the oil industry.

OKLAHOMA GASOLINE PRICES ADVANCE

(Continued from Page 20)

ducing fraternity and the governor of Oklahoma. Such a price at this time would no doubt mean that many independent refiners would have to close down their plants. The obvious result of such a development would be to make impossible any permanent improvement in the crude oil price structure.

In this connection, the testimony of W. S. Farish, president of the Humble Oil & Refining Co., before the Texas legislature last week is enlightening. The Farish testimony is based on a Gulf Coast refinery operation and this differs somewhat from an inland operation in Oklahoma or other Mid-Continent plants. However, the advantages of one area about offset those of another so far as comparative costs are concerned and the Humble refinery profit situation is not far from being representative of Oklahoma conditions.

Mr. Farish's testimony as reported at the Austin hearing was to the effect that the Humble company at its Baytown, Tex., refinery secures 15.12 gallons of straightrun gasoline; 9.75 gallons of cracked gasoline, totaling 24.87 gallons of gasoline, for which it gets 2.88 cents per gallon; 3.15 gallons of kerosene sold for 2.97 cents per gallon; .66 gallon Diesel oil, 2.37 cents per gallon; 4.20 gallons fuel oil from crude bottom and 8.69 gallons from a cracked bottom at 47.5 cents per barrel, all giving gross value of .9726 cents to a 42-gallon barrel of East Texas crude, which is an adjusted value of .9679 cents. Manufacturing and refining overhead is 36.35 cents a barrel, leaving a net return of 60.44 cents from which is deducted 15 cents to leave 45.44 cents, from which is deducted 38.65 cents for pipe line transportation, which leaves a net profit of .0679 cents on a barrel of 15-cent oil.

The pipe line transportation charge in the Oklahoma refinery is less but this is partially offset by the fact that the average Oklahoma refiner is not securing as much for his refinery products. One Oklahoma refiner states that 50 cents is the most that the average refinery can pay at the wells for crude oil and break even in his plant operations with the present refinery market.

Gasoline and Naphtha

Very little if any Oklahoma U. S. Motor gasoline was available on Tuesday under 3 cents either for resale or direct to the trade. East Texas and North Texas refiners generally were quoting the same basis Group 3. Prices in Oklahoma ranged up to 3⅜ cents. Refiners who have developed a business for gasoline with a minimum octane number of 60 and an endpoint around 420 were generally getting the top of the U. S. Motor market.

An increasing number of refiners are making a difference in their U. S. Motor quotations based on octane number. For instance, one of the largest refiners in the State was quoting 3⅜ cents for what he termed a "regular grade of U. S. Motor gasoline" and 3⅛ cents for a U. S. Motor grade to be sold as a "third grade" at service stations. The principal difference in these two grades lies in their octane rating.

A substantial part of the open market trading is between refining companies. A number of companies are short one or more grades of gasoline and they are buying from other refiners. Considerable business for August has already been closed and it is this buying that makes the August outlook appear favorable. One Oklahoma refiner has purchased large quantities of gasoline from East Texas refiners for August delivery the price either flat or based on published quotations on date of delivery. The low price sellers the first of the week appeared to be well taken care of with orders for July and August delivery.

The market interest centers in the U. S. Motor grade and it is difficult to determine the going market in the other grades of gasoline. Few refiners in Oklahoma are consistently making 400, 390, 375 or 350 endpoint material. Usually a refiner making these grades adds one-eighth cent for each to his U. S. Motor price. This means if he is asking 3 cents for U. S. Motor his price on 400 endpoint is 3⅛ cents, 3¼ cents for 390, 3⅜ cents for 375, and 3½ cents for 350 endpoint.

Prices on naphtha and 450 endpoint gasolines were advanced along with the U. S. Motor grade during the week.

Kerosene

Several refiners believe that the kerosene market will shortly improve in price. The so-called "fall" demand will start in August. This comes from agricultural sections where the kerosene is used as tractor fuel. Others in touch with the market believe that the fall demand will prove disappointing as was the spring demand. They maintain that the substitution of gasoline and distillates as tractor fuels will materially reduce the demand for kerosene. Prices were unchanged during the week.

Fuels

As previously explained the low cold test fuels are stronger. Sales of high gravity fuel oil as high as 40 cents were reported in Oklahoma. This material varied in gravity from 28 to 32 and had a zero cold test. Low cold test grades as low as 24 gravity brought 35 cents. At the same time the low gravity, high cold test grades were slow regardless of price. A sale of Oklahoma City fuel oil of 70 cold test at 15 cents was reported.

A zero grade of gas oil with a flash under 190 and otherwise suitable for furnace oil can find buyers at 1⅛ to 1¼ cents. Sellers are asking one-eighth cent more for their higher gravity furnace oils.

Natural Gasoline

Manufacturers were asking 2¾ cents for Grade A, 2½ cents for Grade AA and 2¼ to 2⅜ cents for the other grades. As previously explained the demand for naturals is readily absorbing the available demand and there has been little resistance on the part of refinery buyers to the recent increases in prices.

Lubricants and Wax

The recent advances made in Pennsylvania grade bright stocks and some grades of steam refined stocks has not aided the Oklahoma market. Several manufacturers are sold up but others have material to offer, particularly the high cold test grades. Neutral oils are unchanged.

The wax demand continues slow and manufacturers who are anxious to move material have been compelled to lower their prices. Sales of 124-126 crude scale wax have been made as low as 1½ cents per pound with a price range up to 1⅝ cents.

Late Fields

(Continued from Page 32)

feet. The gas horizon is expected in the next few feet.

Frank Hollow's No. 1 Acre, SW cor. NW Section 20-22-3w, in northwestern Harvey County, has resumed drilling operations at 2,940 feet.

OKLAHOMA

Stanolind Oil & Gas Co.'s No. 1 Burk, NW cor. SE, Section 32-5-5, in the Beebe Pool, in Pontotoc County, is the second Wilcox sand producer for the area which is south of the Greater Seminole Field. The top of the Wilcox sand was found at 2,576 feet and 1 foot in the formation the well swabbed and flowed 60 bbls. of oil an hour. The casing is being landed on top of the formation before drilling deeper. The first Wilcox sand producer in the area was found by the Superior Oil Co. approximately a year ago.

In the Holdenville area in Hughes County, the Boettcher Oil & Gas Co.'s No. 1 Schramm, SE cor. NW, Section 11-7-8, is preparing to drill into the pay horizon. The top of the sand was found at 2,975 feet, where the 6-inch casing was landed.

The production from the Oklahoma City Field at 7 a. m., July 27, was 16,901 bbls. from 24 wells, with a total of 809 wells completed in the field. It is the smallest day's production from the Oklahoma City Field since the entire field was shut in September, 1929.

In southern Oklahoma, Stephens County operators are turning to gas areas. J. C. Chambers and others' No. 1 Dare, NW cor. SE, Section 2-2s-8w, on the north side of the Comanche Field, was a new location. H. J. Brown and K. D. Drilling Co.'s No. 1 Hightower, SW cor. SE NE, Section 15-3s-5w, have cemented on top of the gas sand at 930-45 feet.

In the Tatums Field in Carter County, three operations were active and one shut down waiting for cement after reaching the pay sands. Carter Oil Co. and others' No. 1 Spraggins, NW cor. SW, Section 19-1s-2w, on the east edge of the field, was shut down at 1,780 feet on top of a series of sands logged at that depth and a total depth of 1,946 feet. Magnolia Petroleum Co.'s No. 5 Dickerson, NE cor. SW, Section 24-1s-3w, the west offset to the Carter Oil Co. and others' test, was drilling at 1,520 feet. Frank Gouin and others' No. 1 Burton, C S half SW, Section 30-1s-2w, about three-quarters of a mile south of the production in the field, was drilling at 1,700 feet. Carter Oil Co.'s No. 4 Franklin, C NE, Section 24-1s-3w, was a completed rig. It is located on the northeast edge of production.

An important test in the Oklahoma City Field was shut down waiting for cement. Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 1 Egermier, SW cor., Section 23-11-3w, on the west side of the field, found the Wilcox sand at 6,430-39 feet. The well is located approximately three-quarters of a mile west of production in the Oklahoma City Field.

TANK WAGON CHANGES

(Continued from Page 158)

Vicksburg, Miss., reduced to 14½ cents from 16 cents and service station price reduced to 15½ cents from 16 cents. July 13, kerosene tank wagon price reduced to 10 cents from 13 cents at Mobile, Ala., and on July 21 gasoline service station price at same point was reduced to 16 cents from 18 cents. July 1, gasoline service station price at Montgomery, Ala., reduced to 16 cents from 18 cents. June 27, gasoline service station price at Savannah, Ga., reduced to 16 cents from 18 cents. July 4, gasoline service station and tank wagon prices reduced 1 cent at Pensacola, Fla., service station being 19 cents and tank wagon, 18 cents.

Standard Oil Co. of New Jersey—Effective July 20, gasoline service station price at Charlotte, N. C., advanced 1½ cents to 18.5 cents.

Continental Oil Co.—Effective July 17, gasoline tank wagon and service station prices at Salt Lake City, Utah, reduced 3 cents. Effective July 18, there was a general advance in the southern part of Idaho of 1 cent per gallon in gasoline prices at which time all allowances to dealers at time of delivery were discontinued. The gasoline tank wagon and service station prices at Boise, Idaho, and Twin Falls, Idaho, were advanced one-half cent and 1½ cents respectively on that date.

Standard Oil Co. of Indiana—Effective July 20, company reduced gasoline service station and tank wagon price at Detroit to 11.3 cents. Same company on July 27 reduced price to 10.3 cents.

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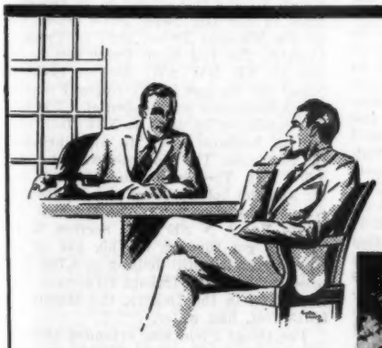

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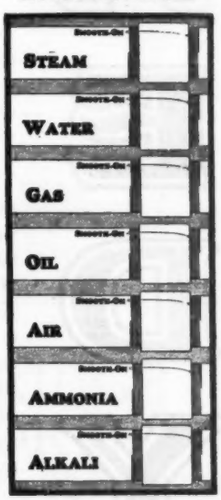

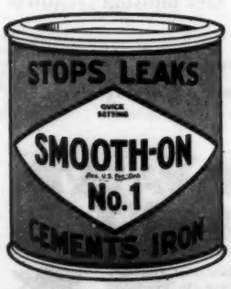

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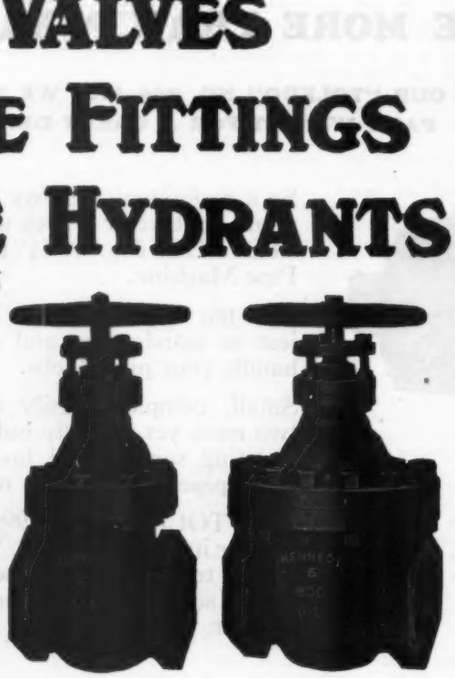

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HOBBS DEVELOPMENT HELD FOR FUTURE

(Continued from Page 102)

that the sand is erratic and does not cover a large area.

COLORADO
Summary of Wells Completed First Six Months 1931

County—	Comp.	Prod.	Dry	Gas
Baca	1	0	1	0
Fremont	2	125	0	0
Larimer	2	100	0	1
Mesa	1	0	1	0
Moffat	4	296	0	2
Montezuma	4	0	4	0
Montrose	1	0	1	0
Pueblo	1	0	1	0
Rio Blanco	1	0	1	0
Routt	1	100	0	0
Weld	1	565	0	0
Total	19	1,186	9	3
Same period 1930	26	560	16	2
Difference	7	626	7	1

Completions by Months				
January	2	140	0	0
February	6	846	3	0
March	2	0	2	0
April	4	200	0	2
May	0	0	0	0
June	5	0	4	1
Total	19	1,186	9	3

WYOMING

With very few exceptions, drilling was at a standstill in the producing fields of Wyoming during the first half of 1931. The exceptions included three wells drilled in Salt Creek, one in the Big Muddy, two wells deepened in Lance Creek and 13 wells completed in the Osage Field in Weston County. Total completions for the first half of the year were 29, of which 5 were dry and abandoned and 4 were gas wells, which compares with 56 in the first half of last year, of which 10 were dry and abandoned and 5 were gas wells. New oil production was 4,979 bbls. against 8,292 bbls. in the same period in 1930.

There were no new fields brought in, although there were several discoveries made in wells that were deepened to lower horizons and one field, the Osage, in Weston County, was extended some distance to the west. One of the discoveries resulting from deeper drilling was in the Midway Dome test drilled by the Midwest Refining Co. in its No. 11 Middy, C NE NE, Section 23-35-79, in Natrona County for its joint account with the Salt Creek Producers Association, the Mountain Producers Corp. and the Midway-Geary Syndicate. This well found oil in the second bench of the Wall Creek sand at 5,215 feet, total depth, late in 1930 and averaged 600 bbls. of fluid per day, of which 400 bbls. was oil and 200 bbls. water, in a 10-day test. It was plugged back to shut off the bottom water and was a small producer, failing to make a commercial well after it was shot. After being tested for some time the production dropped to 50 bbls. and this past spring the Wall Creek was cemented off and the hole carried on down to a total depth of 6,685 feet, testing all horizons down to and including the Sundance. It topped the red beds at 6,620 feet. The Muddy, the first of the Dakota series, showed saturation at 5,967-83 feet, the only horizon cut which indicated it might have commercial production. After plugging back it flowed 40 bbls. per hour. Some water showed and the water continued to increase. At this writing no satisfactory test of the Muddy horizon has been obtained on account of cavey ground and difficulties in cementing off the bottom water. In the interval between the testing of the upper sand and drilling to the Muddy, the same interests drilled No. 11, SE NW NW, Section 32-34-77, on the Geary Dome to the southeast, one of the three structures under a co-operative group development plan approved by the Department of the Interior. The Geary Dome test topped the Frontier at 4,863 feet. The first Wall Creek was dry. The second Wall Creek was topped at 5,309 feet and showed a little gas down to 5,314 feet. It was deepened to 5,340 feet and the 9⅝-inch was run and cemented at 5,338 feet. Operations then were suspended while the crew went back to the Midway test and drilled that hole down to the Sundance as noted above. Whether the Geary test will be carried on down to the Sundance has not yet been announced.

In the Big Muddy Field, the Ohio Oil Co. deepened its No. 5 Jones, NW NE NE, Section 9-33-76, from the Frontier (Wall Creek) where it had been on production for some time, to the Lakota. The Lakota was topped at 4,345 feet and the hole was drilled to 4,364 feet and completed. This opened a new producing horizon in the Big Muddy, though one or two wells previously had been drilled to the Dakota sand, the next horizon above the Lakota. The well made an average of 345 bbls. daily, the oil at first testing 32 degrees gravity, and showing a little better after tubing. The well then was beaned down to 15 bbls.

A discovery made late last year on the Badger Basin Dome in Park County in the Resolute Oil Co.'s No. 1, NE SW NE, Section 17-57-101, drilled through the second Frontier this spring, but no official announcement has been made as to its production, awaiting the tubing of the hole and the applying of gas pressure in an effort to increase the flow. It topped the first Wall Creek at around 8,245 feet. That horizon contained some gas and a small quantity of oil testing 45 degrees gravity. After a tedious fishing job was cleaned up, drilling was resumed in a 3½-inch hole and at last reports it was bottomed at 8,660 feet, having both sands, each of which was 100 feet thick. Scout reports are to the effect that the well makes a head of 35 bbls. each 18 hours and that it flows when the oil rises 6,500 feet in the hole. This is the deepest well ever drilled in the Rocky Mountain area and whether it will be commercial at that depth remains to be determined.

Three wells were drilled in Salt Creek, all going to the Sundance. These did not prove up any new territory, but were put down pricipally to determine the possibilities of rotary drilling in that field. The Olson Drilling Co., which drilled the Midway and Geary tests, put down these three holes.

The Producers & Refiners Corp. continued drilling this spring on its two deep tests in the Big Sand Draw Field and on the Muskrat Dome, both in Fremont County. The Big Sand Draw test in its No. 10, SE NW SW, Section 14-32-95, found the big gas in the upper Frontier, which formation was topped at 2,260 feet, and continued on down to 5,345 feet, testing all horizons down to and including the Sundance. The Morrison was at 4,290-4,386 feet. The Sundance contained water and the hole is being plugged back to complete as a gas well. The Muskrat test in its No. 2, N SE NW, Section 33-34-92, also got through the big gas in the Frontier and is still drilling at 5,760 feet, presumably in the Dakota formation. The first sand in the Dakota, the Muddy, at 5,573 feet, had water.

The Osage Field was extended about a mile to the southwest in the western extension, the wells running from a few barrels up to 160 bbls. This field is producing better than 1,000 bbls. a day, and the oil is selling at 98 cents.

WYOMING
Summary of Wells Completed First Six Months 1931

County—	Comp.	Prod.	Dry	Gas
Salt Creek	4	3,001	0	0
Carbon	2	0	2	0
Converse	2	350	0	1
Crook	1	7	0	0
Natrona*	2	135	0	0
Niobrara	2	0	0	2
Park	2	0	1	1
Sublet	1	90	0	0
Weston	13	1,396	2	0
Total	29	4,979	5	4
Same period 1930	56	8,296	10	5
Difference	27	3,317	5	1

*Exclusive of Salt Creek.

Completions by Months				
January	7	2,276	1	2
February	3	950	0	0
March	1	0	0	1
April	9	1,377	0	1
May	4	150	2	0
June	5	226	2	0
Total	29	4,979	5	4

MONTANA

There were no major discoveries reported in Montana during the six months, most of the completions being in proven

areas in the Kevin-Sunburst, Border and Pondera Pools. While several wells are drilling on the Dry Creek Dome, in Carbon County, where the Ohio Oil Co. brought in the discovery well last year in the Lakota sand at 5,514 feet in its No. 2 Northern Pacific, C SE NW, Section 11-7s-21e, only one of these had reached the objective by the end of the period. This was the Ohio's No. 1 Montana Industrial, SE SW NE, Section 11, an offset on the north to the discovery. It was in the top of the Lakota at 5,581 feet and was showing a little oil and gas, but was rather disappointing. Apparently, it is up against a fault. Before the end of the year two or three drilling wells probably will reach the objective and give a better indication of the possibilities of the structure.

The most active area in the State is the Cut Bank Field in Glacier County, where the Montana Power Co. is drilling seven wells to develop a gas supply for its pipe line to Helena and Butte now under construction. The discovery well in this field is Hill and O'Neil's No. 1 Michaels, C SE SE, Section 28-36-5w, which was completed in 1930 at 3,750-71 feet as a 15,000,000-foot gas well. Later in 1930 the Texas Production Co. completed its No. 1 Small, 6 miles to the southwest in the NE SW SW, Section 13-35-6. This well had water in the Ellis-Madison contact at 3,009 feet and was plugged back to 2,995 feet where it gauged 4,390,000 feet of gas at a pressure of 725 pounds to the square inch and 3 to 4 bbls. of 34 degrees gravity oil. No. 1 Small topped the first red shale at 2,213 feet and had water in the base of a sand at 2,615-2,747 feet, probably the Sunburst. It had gas in a sand at 2,830-36 feet and in sandy shale at 2,852-60 feet. Heavy oil was encountered in sand at 2,860-65 feet and a show of oil at 2,870-71 feet. Hill & O'Neill, early in 1931, went 1 mile to the northwest of the discovery well and drilled their No. 1 Michaels in the C SE SE, Section 20-36-5w. This well encountered water at 3,113-40 feet and was abandoned at a total depth of 3,150 feet. It topped the Kootenai at 2,360 feet and had a show of oil and gas and water in sand at 2,878-2,905 feet. This well limits the area to the northwest. One of the seven drilling wells, one-fourth of a mile to the southeast of the discovery, encountered the first gas sand the past week, but it does not prove any additional territory. The other drilling wells are scattered at intervals one-half to a mile to the southeast of the discovery, except one to the southwest, and so spotted as to determine the productivity and area of the field.

One gas well was completed on the Bear's Den structure in Liberty County in G. G. Howard's No. 1 Schoonover, NW NW, Section 18-36-6e. It had gas in sand at 1,944-2,000 feet and oil at 2,202-47 feet. It gauged 6,250,000 feet of gas and 10 bbls. of oil. Several wells are drilling in this area.

Drilling in the Kevin-Sunburst, Border and Pondera producing fields was carried on during the six months on a much smaller scale than in former years due to the prevailing conditions in the industry.

MONTANA

Summary of Wells Completed First Six Months 1931

County—	Comp.	Prod.	Dry	Gas
Toole	12	63	6	2
Pondera	2	31	0	0
Glacier	1	0	1	0
Liberty	4	0	1	3
Hill	4	0	2	2
Choteau	1	0	1	0
Miscellaneous	3	0	0	3
Total	27	94	11	11
Same period 1930	62	2,036	19	13
Difference	35	1,942	8	2

Completions by Months				
January	5	31	0	3
February	6	15	3	2
March	5	12	1	3
April	4	0	4	0
May	4	21	2	1
June	3	15	1	1
Total	27	94	11	11

UTAH

Utah fared a little better in the first half of 1931 with a discovery that indicates the opening of a commercial pool, though it has not yet been completed and its importance will be disclosed only by deeper drilling or further development. This is the Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23-21, on the Salt Valley Dome, in Grand County, 6 miles from the Denver & Rio Grande Western Railroad. This company has done extensive exploration in southeastern Utah and applied the experience gained in former tests in putting down this well. Last year it drilled on the flank of the dome in an effort to find oil away from the salt beds on top. This test was a failure and the company then moved to a location on top of the structure and drilled its No. 1 Balsey as a test to the lower Pennsylvanian and Ordovician. It was out of the salt and into black and gray shale at 3,350 feet. A show of oil was encountered in conglomerate at 3,397 feet and at 3,415 feet and another in black sandy lime at 3,432 feet. The hole was drilled to 3,500 feet and tested an average of 15 bbls. per day of 37 degrees gravity oil green in color and of paraffin base. It is shut down to await decision as to whether it will be drilled deeper. No water was encountered.

A test on the Bloomington Dome, near St. George, in Washington County, encountered a water sand at 2,526 feet and was abandoned. It was started by the Mid-American Oil Co. in the SE NW, Section 17-43-15w, and was completed by Esclante Explorations, Inc.

UTAH

Summary of Wells Completed First Six Months 1931

County—	Comp.	Prod.	Dry	Gas
Washington	2	0	2	0
Total	2	0	2	0
Same period 1930	2	0	1	1
Difference	0	0	1	1

Completions by Months				
January	1	0	1	0
February	0	0	0	0
March	0	0	0	0
April	0	0	0	0
May	1	0	1	0
June	0	0	0	0
Total	2	0	2	0

NEW POOLS OPENED IN SOUTHWEST TEXAS

(Continued from Page 112)

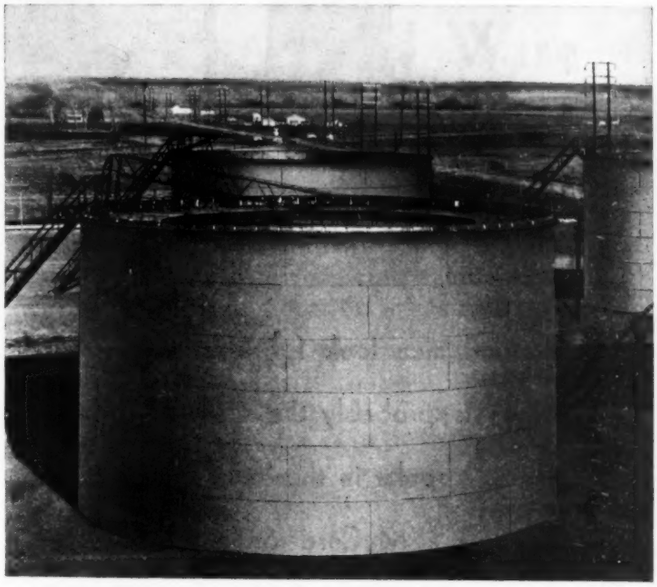
in the middle of the White Point Field in San Patricio County, a gas well in one of the regular sands at around 2,200 feet was deepened and late in December looked like a small well at 4,900 feet. It was deepened to 6,000 feet and later plugged back and completed January 14, 1931, at 4,903 feet for 40 bbls. of oil and considerable gas. The company's No. 4 White Point Development Co. was also deepened but down to 5,750 got nothing and has been plugged back but not completed at this time. No. 17 Rachel is 150 feet from the north line and 1,000 feet from the east line of the Rachel 200-acre tract.

South of the bay in Nueces County in the Saxet Field the first deep test was the Saxet Oil Co.'s No. 6 John Dunn deepened from the shallower gas sand at 2,300 feet to 4,304 feet where it came in for about 100 bbls. of oil late in 1930.

Since then there have been several new sands opened in that field from a campaign of deep drilling. Houston Oil Co.'s No. 1 Joe Hunter, 607 feet from the west line and 165 feet from the south line of the 75-ac. tract in Section 591 on January 17 was completed at 4,079 feet for 200 bbls. of oil on quarter-inch choke with 1,700 pounds pressure. It is 24 gravity oil. It is the discovery well for that sand. It is 2 miles west of the Saxet Oil Co.'s No. 6 Dunn. Since the O. C. Best brought in No. 1 Boery, 3 miles farther west in the same sand at 4,037 feet for a 50,000,000-foot gas well and other completions have given that sand a length of 5 miles east and west and 1½ miles north and south with a total of seven wells.

More recently Houston Oil Co. started deepening Thompson's No. 2 Lawrence, completed months before in a new sand at 1,659 feet making gas and purchased by the Houston Oil Co. and at 2,740 feet it blew out and ran wild in a sand that has not been producing in any other well. It is still uncompleted, however.

Greater Evaporation Savings With This Improved ROOF



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The Wiggins Pontoon Roof offers maximum effectiveness in reducing evaporation loss from working tanks. Pontoon construction makes this improved roof non-sinkable and lowers the temperature of the gas and liquid in the Wiggins seal, greatly increasing its efficiency.

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Evaporation savings alone will repay the cost of Wiggins Pontoon Roofs, leaving as clear gain the valuable protection against fire and corrosion which they provide. No tank protected by a Wiggins Roof has ever been destroyed by fire.

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Detroit.....1514 Lafayette Bldg.
Cleveland.....2204 Midland Bank Bldg.
New York.....3147 Hudson Terminal Bldg.
Philadelphia.....2615 "1616" Walnut St. Bldg.
Boston.....1517 Consolidated Gas Bldg.
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Also L. L. Smith's No. 1 Hunter during the closing days of June in a sand at 3,368 feet, not producing in any other well in the field was completed with 1,350 pounds pressure and estimated at 25,000,000 feet of gas. The six months drilling in the Saxet Field has thus opened up some deep sands and indicated some considerable possibilities for that field. Operators are comparing it with the Refugio Field, 40 miles north and located similarly on the Gulf Coast. Refugio is a field of many sands.

A map of this field was published in The Oil and Gas Journal, May 14, 1931, on page 57.

Agua Dulce Field

In the Agua Dulce Field in western Nueces County, due west 20 miles from the Saxet Field, gas production is had at an average depth of 2,000 feet. Houston Oil Co. owns considerable production in the field. The company drilled No. 1 Comstock, a mile east of the field and at 4,913 feet on March 6 completed a well making 40,000,000 feet of gas and about 30 bbls. of gasoline. It is located in the C SE SW, Section 86, of the Benton Pasture Subdivision. On May 7 at 4,848 feet the same company completed No. 1-B Ollie Purl for 40,000,000 feet of gas and making a little gasoline. It is about 1 mile south of No. 1 Comstock and is 365 feet from the east line and 505 feet from the north line of Lot 1, Block 7, of the Ross Peters Subdivision No. 2. These are the only tests the company has drilled deep in that field. No. 1-B Ollie Purl was carried to 6,010 feet and plugged back to its completion depth.

Live Oak County

The Cartwright or Mount Lucas gas field in southeastern Live Oak County is unit owned by the Houston Oil Co. and has been producing gas from sand at a little below 2,000 feet for several years. Early this year the company undertook to explore for deeper pay and the No. 1 Boothe was drilled and the hole lost when it had a showing at 5,279 feet. No. 1-A Boothe was drilled 70 feet south and 200 feet east of No. 1. At 5,277 feet it was completed for about 65 bbls. of oil. It is about three-quarters of a mile north of nearest gas production in the field in the shallower sand.

Since then the company drilled a number of other tests in the same field. The No. 22 Cartwright was deepened to 6,023 feet and abandoned dry, No. 3 Brown Land & Cattle Co. was deepened to 5,576 feet, No. 1 D. W. Snyder drilled to 5,386 feet and No. 4 Brown Land & Cattle Co. to 5,724 feet, all dry. June 25 the company after having deepened No. 22 Cartwright in the west part of the field to 3,565 feet in a new sand swabbed 77 bbls. of oil in two and a half hours and as this was being written it was installing a pump unit. It and No. 1-A Boothe are the only producers. The others were all abandoned dry. No. 1 Boothe, the hole that was lost was 3,000 feet from the west line and 300 feet from the south line of the 822-acre tract in the M. B. Kilvin Survey.

Laredo Discoveries

In the Laredo district the most important discovery was a new sand at the southeastern extremity of the Cole area in Duval County by the Magnolia Petroleum Co. Its No. 1 Benavides, 330 feet from the north and west lines of Survey No. 172 at 2,465 feet was completed May 27 for about 35,000,000 feet of gas. Production in the Cole Field averages at around 1,700 feet with the exception of a few wells in the southeastern extremity at around 2,900 feet. This new well is about 3,000 feet southeast of nearest production.

Pettus Area

In the Pettus Field in Bee County, United Production Co. drilled No. 31 Ray midway between the Townsite Pool on the west and the Ray-McKinney Pool on the east and proved that they are all one pool by getting a 400-bbl. oil well at 3,975 feet, at uniform depth with production in the two pools. It also drilled a line of wells to the east extending the field about a mile but coming to a halt when No. 38 Ray, the last to the east came in a dry hole.

In the closing days of June J. M. Davis' No. 1 Ray, 330 feet from the north and east lines of the John W. Williamson Survey and a mile west of townsite production at 3,925 feet on a drill stem test looked like an oil well. It is thought that a fault cuts it off from the Townsite Pool and that it will open a new pool. It was in process of being completed on June 30.

SOUTHWEST TEXAS
Completions by Counties First Six Months of 1931

County—	Comp.	Prod.	Dry	Gas
Atascosa	2	0	2	0
Bastrop	7	0	7	0
Bee	23	2,605	14	2
Bexar	19	96	5	0
Brooks	2	0	2	0
Caldwell	9	15	6	1
De Witt	3	0	3	0
Duval	19	5,475	9	3
Edwards	2	0	2	0
Falls	3	42	1	0
Fayette	1	0	1	0
Frio	1	0	1	0
Goliad	5	600	4	1
Gonzales	7	0	7	0
Guadalupe	46	25,453	10	0
Hays	1	0	1	0
Jim Wells	9	0	8	1
Jim Hogg	4	0	4	0
Karnes	4	0	4	0
Kendall	3	0	3	0
Kerr	1	18	0	0
Kinney	1	0	1	0
Lavaca	1	0	1	0
Lee	2	0	2	0
Live Oak	13	65	12	0
Maverick	3	0	2	1
McMullen	1	0	1	0
Medina	7	0	7	0
Milam	6	0	6	0
Nueces	16	385	4	5
San Patricio	7	140	4	1
Starr	5	0	3	2
Real	1	0	1	0
Travis	7	0	7	0
Webb	14	382	9	3
Williamson	49	4,249	18	0
Wilson	2	0	2	0
Victoria	4	0	2	2
Zapata	84	2,658	36	11
Zavala	4	0	3	1
Total	401	42,183	219	34
First six mos. 1930	455	272,745	303	34
Difference	54	230,562	16	0

Completions by Month

	Comp.	Prod.	Dry	Gas
January	79	11,008	37	7
February	51	9,176	26	5
March	73	6,050	35	10
April	55	8,217	21	3
May	78	8,876	53	4
June	65	1,856	47	5
Total	401	42,183	219	34

REVIEW OF PROGRESS MADE IN ENGINEERING

(Continued from Page 83)

clearly define structures that could only be found by long, arduous field trips if the airplane was not available and this saving in time and expense in exploration is justified, but if used to an excess will react unfavorably upon the industry.

Following preliminary survey by airplane and aerial photographing comes the geologist with his geophysical instruments by which he is able to determine quite accurately the position and shape of underground structures. Man has not as yet devised any accurate means of determining in advance of drilling whether these structures are charged with oil and gas, but the hazard of drilling has been greatly reduced, which should result, if properly applied, in a cutting of development costs and a consequent ultimate saving in securing a future supply of oil.

That geophysical instruments can be used to excess was shown in the years 1924, 1925 and 1926 when the magnetometer became very popular and was used extensively for preliminary surveying and upon the findings and reports of the field parties many thousands of acres of land were taken under lease of five-year periods and consequently in 1929, 1930 and 1931 there were numerous wells necessary to be drilled because of expiration of these short term leases. This error has been recognized and leases now extend over a longer period of time and drilling obligations can therefore be spread out and in this way unnecessary flush production reduced materially.

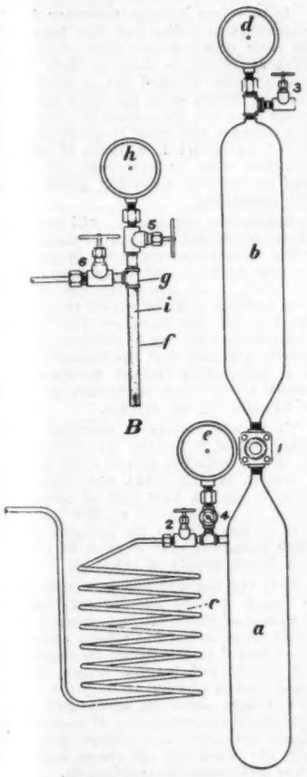
Improved Drilling Equipment

After the land has been leased upon recommendations of the geologist the production department is required to develop it and in so doing they have been led to adopt the latest and most improved types of drilling equipment because their code seemed to always require that they must

finish the hole and get production in the very shortest possible time regardless of other consequences.

To anyone who has followed the development of drilling equipment closely for the past 10 years it must have been strikingly noticeable that there was a tendency ever present to increase the size and strength of parts until it is now possible to drill holes in but a small part of the time formerly required and at a much lower drilling cost. The lowering of costs is justifiable but to use the equipment to speed up development of a field beyond economical limits is foolish.

The progress of equipment development has all been brought about by the willingness of the consumer to pay for the more expensive type of machinery, and



High-pressure sampling apparatus. Separator "B" replaces "b" in laboratory operations.

back of this desire is again discovered the basic error of desire to get to oil first and gain the advantage of flush production. While this may be justified in the individual case it cannot find a place in a well ordered industry when everyone is doing the same thing, for when they all use the same general type of equipment and make the same speed in development the net results are that they are all again upon an equal footing in getting oil and overdevelopment and production is the result with its attendant lowering of crude oil prices.

Nowhere has this condition been better exemplified than in the Oklahoma City Pool where many millions of dollars have been spent in rushing production on the market at a high cost of drilling only to find that the market could not absorb this added oil as rapidly as produced and the price paid for it has fallen. And all this after the costly experience in the Seminole area just a short time before.

Engineering Efficiency

It might be here stated that primarily the confidence placed in the ability of the engineer and designer led to this wild orgy of drilling, for as soon as the executive found that the engineering department of his company could speed up operations he gave carte blanche orders to get production as quickly as possible on his properties.

Under such a condition it was only natural for the engineer to take advantage of this opportunity to demonstrate to his superior officer and company that he was worthy of his pay and therefore he used every new device that was available and invented more to speed up the drilling and production operations. If he had not done so there would have been little justification in his employment.

When the engineer first came into the production department he had a hard row to hoe because his method of procedure and his mode of thought were very different to that previously followed in the industry and the superintendents were inclined to look upon his efforts with a good deal of apprehension and doubt. In fact many of them took the "show me" attitude toward the graduate engineer and this in turn developed the fighting spirit in the technical man for he had been given a job and had to fight to hold it and as a result conditions were quickly changed and everything speeded up.

As the engineer demonstrated his ability to deliver the goods in his line the superintendents gained confidence in his judgment and began to work with him and the combination of experience and theory made a 100 per cent team and things hummed in earnest and the great race for production was on.

Before the executives realized it this race was out of control and as everyone was taking advantage of all new devices actual results secured were much the same for all, but the combined efforts soon brought about such a flood of oil as to break the market, apparently for all time.

Not only has the art of drilling been vastly improved but wonderful strides have been made in the methods of producing oil, as notably exemplified in the use of the air-gas lift in the Seminole area. While that idea was by no means new to the industry it was given its first real opportunity of demonstration during the Seminole development period with the result that within eight months that field was producing more oil than had been produced in the Cushing area after three years of intensive drilling.

Many are inclined to desire a return of the "good old days like Cushing" but seem to overlook the fact that such a thing is not possible because of the result of efforts on the part of everyone in the industry, or connected with it even remotely, to speed up production. If the development of the Seminole Field had been spread over a period of three years the price of oil would not have dropped from $2.60 to around $1 per barrel and then when other large pools were brought in by the hurry up method finally sunk to the value of less than 20 cents.

Sane Use of New Methods Necessary

Engineering technique is as essential to the progress of the oil industry as to any other industry but it must be remembered always that these new methods are open to all and that no one is gaining any actual advantage over his neighbor, for when a good piece of equipment is introduced into the industry and proved the manufacturers naturally exploit its virtues and others are induced to buy it. This cycle of continued improvement will keep on and it is absolutely necessary, for how would the petroleum industry supply the present needs of about 1,000,000,000 bbls. of oil per year for this country if its drilling operations were still carried on under Cushing conditions?

The science of production is given serious consideration by trained technicians from many angles and new devices are brought into being constantly. Formerly all estimates of underground conditions had to be made from the surface but now it is possible to determine things as they exist underground quite accurately by applying modern methods and equipment.

Sand study has advanced to that stage where it is possible to reconstruct in the laboratory underground conditions of the reservoir and state with a fair degree of accuracy the porosity, permeability and saturation of an oil sand. This permits estimates of reservoir capacity and future supply to be estimated and with such knowledge the producing company can make definite plans of operations.

The taking of underground pressures can now be done with instruments that are run into the hole and which record

Spying Out the "CHARACTER" of Steel Wire

THIS microscope gives the wire for B & B Drilling Lines "the third degree." The texture of the metal has to show a certain "pattern" under its eye; there must be no indications of unwanted chemicals; breaks resulting from physical tests must have a certain appearance.

Every drilling line obtains its character from the wires in its make-up. We make sure of the character of B & B Drilling Lines. You can be equally sure, too, by writing B & B into your specifications for Drilling Lines, Sand and Pumping Lines.

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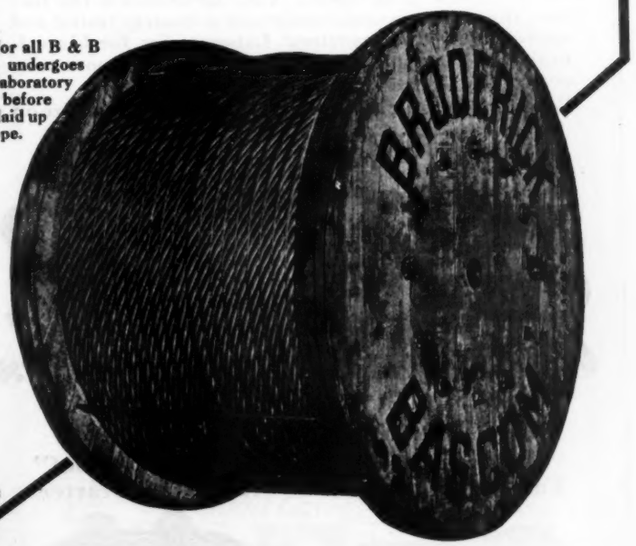
Wire for all B & B Ropes undergoes many laboratory tests before being laid up into rope.



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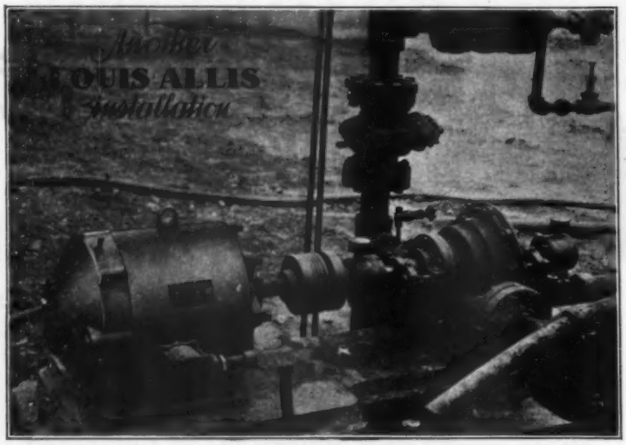

Outdoors, too . . . Louis Allis "Explosion-Proof" Motors are *needed* and *used!*

Here is one of seven motorized pumps handling hot gasoline from the stabilizers at a large natural gasoline plant near Seminole, Oklahoma.

Although installed out-of-doors, the driving motors are frequently surrounded by explosive vapors from the pumps . . . because gasoline vapors, being heavier than air, cling to the ground.

Consequently, Louis Allis Type E "Explosion-Proof" motors were selected . . . to protect this modern plant from the fire hazard which exists wherever non-approved motors operate in explosive atmospheres.

With L.A. "Explosion-Proof" motors and starters, you are not *guessing* at safety. Your *assurance* is the fact that these motors and starters are definitely tested and approved by Underwriters' Laboratories for Class I. explosive atmospheres where petroleum vapors may occur.

Be on the safe side! Follow the leaders! Standardize on

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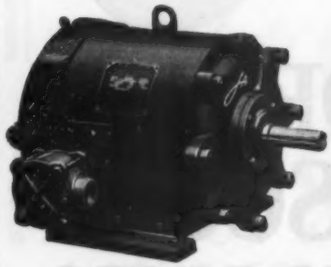

The *First* "Explosion-Proof" Air-Break Starter

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these pressures and temperatures exactly. By gathering together numerous such readings and comparing them, conditions of underground oil and gas movement can be closely anticipated and the position of bottom and edge waters outlined. This new development is placing much new and valuable information in the hands of the engineer and from it he is going to develop a producing technique that will be based largely upon observed conditions rather than upon guesses and past experiences such as have been the production man's guide in the past.

A study has been instituted by the Bureau of Mines and the American Petroleum Institute to determine the actual underground conditions under which gas and oil are associated. Samples of well production are being secured under well head pressures and taken to the laboratory and studied and the results are bringing to light some rather startling facts that will undoubtedly have a marked effect upon the future of the oil industry.

Articles describing this work have appeared in The Oil and Gas Journal under dates of May 14 and July 9 and 16. They were prepared by Ben E. Lindsly, United States Bureau of Mines, Bartlesville, Okla., and Dr. W. N. Lacey of the California Institute of Technology, Pasadena, Calif., and follow the pioneer work along this line done by Parkhurst and Beecher, R. Van A. Mills and others. The engineer has long been interested in this vital subject of solubility of gas in oil and underground conditions in which these elements exist and is now finding ways of securing accurate data concerning them.

Numerous devices have been developed for checking flow of water into a producing well, some of them mechanical, and others of the electrical type in their operation, and by the application of such means to production problems guesswork is being eliminated, and trial and error system of determining underground production conditions eliminated, with a consequential reduction in operating costs.

Electrical underground surveying of a finished well or hole is giving valuable information to the production man and geologist and by its application many conditions heretofore unknown are being made clear. These instruments determine position and thickness of strata by difference in conductivity of the fluids encountered by the instrument as lowered into the hole, and when this datum is correlated with existing known geological facts a good picture of the condition of the well and location of producing and water sands is made known.

The lowering of lifting costs has been brought about by a careful study of the mechanics of pumping equipment and new and improved pumping units developed, together with better underground equipment in the form of rods and pumps. It is no longer considered essential that the well be pumped as rapidly as possible to secure the maximum of production and it has actually been proved in many instances that this manner of pumping is really detrimental to the most efficient results. Time studies with the use of dynamometers at the surface to determine static and live loads give the engineer valuable working data which he is applying to his well and bringing about more efficient lifting conditions.

The handling of oil above ground is no longer considered a job to be delegated to the lease man without regard to type of tanks and separators used. When the company is spending money to lift the oil from the well it now feels entitled to save all of the production possible so that the runs to the pipe line will be a maximum and evaporation losses are largely eliminated by vapor pressure tanks and valve equipment to regulate movements of gases and vapors out of and into the tanks.

Care in Directing Engineering Efforts

The discussion of new and improved methods devised within the past few years might be continued almost indefinitely, for the petroleum industry has attracted to it many hundreds of capable men who are now applying to its problems their past experiences gained in other industries and many new ideas are being constantly developed for other purposes.

This is all tending to reduce all costs materially and for the future will play a very important part in the selling price of crude oils for the refining and marketing branches of the industry are likewise making marked improvements in their methods to keep pace with the ever increasing needs of the ultimate consumer of products of petroleum.

The need for new uses for petroleum products is recognized by everyone and research work is being carried on constantly to that end, but such development must of necessity be slow and cannot possibly keep pace with the already known advances made in producing, transporting and refining.

It therefore becomes necessary for the executives to realize that they have within their organizations men who can be of great value to them if their efforts are properly directed but if given carte blanche orders, as in the "good old days" when time was the essence of every drilling contract and haste in production followed unrestricted, a flood of oil will continue with its attendant low prices and no one will make any profit out of the operations.

Legislative enactments will not cure abuse of the use of scientific devices and while normal progress in the development of new methods and equipment will be essential at all times the use of such new methods must be curbed to meet the demands of the industry for finished products and not try to produce oil without limit hoping that the demand will in some miraculous fashion be speeded to absorb all this new oil as fast as it can be brought to the surface.

To have a reserve is essential to all industry and to use the talents and ability of the technical man to build up such a reserve is only right and logical for there is such a vast sum of money invested in the industry at this time and it is so essential to the progress of all other industries that it must be assured of a future supply of crude oil.

That the engineer has been able to do so much toward eliminating possible shortages of crude oil is a commendable achievement and if his efforts are properly directed in the future to conserving this supply and keeping a new supply ahead that is in keeping with the industry's future demands great good will come to all concerned, but if engineering efforts are used in a competitive way only the condition of chaos and low prices will continue indefinitely.

OPEN FOUR NEW FIELDS IN GULF COAST AREA

(Continued from Page 98)

Railroad Commission. The play resulted in the proving up of one of the most consistent producing areas at Barbers Hill, with the pool a solid line of production reaching almost to the northwest flank production on the north end and to the southwest flank production on the south. During the latter part of March and April the line fight came to an end and with completion of tests drilling at that time the activity gradually declined until at the close of the first half of the year there were only six rigs running in that area.

This year also has witnessed further proving up of the north flank of Barbers Hill in sands underlying the salt overhang there. This development, however, was carried on more conservatively due to the absence of line fighting. All acreage is held by two companies, Humphreys Corp. and Mills Bennett Production Co. The former brought in a succession of good wells from sand at 5,100-5,200 feet but at no time have more than two rigs been kept running in that particular area. The pool opened late in 1930 by Mills Bennett Production Co.'s No. 3 E. W. Barber is several thousand feet to the west of Humphreys Corp.'s operations. There that company drilled a second producer, its No. 1-B Barber, located 100 feet east and 75 feet south of the discovery well, early this year but it failed to make as good a producer as the first

and with its completion further development in that area was suspended.

The Lockport Area

Of importance at Lockport was the development carried on in the deep northwest extension district. That area was opened during November, 1930, by Yount Lee Oil Co.'s No. 1 Miller, located about a mile to the northwest of the main field, which came in flowing 1,100 bbls. daily through a three-eighths-inch choke from sand at 6,679-6,706 feet. Vacuum Oil Co. immediately offset this to the west by No. 9 Bordages, which was completed in March flowing 1,250 bbls. daily with one joint of screen at 6,525 feet. Yount Lee Oil Co. soon followed this with its second producer, No. 2 Miller, located south of the deep discovery well, and Union Sulphur Co. offset this to the south with No. 2 Martha Moss, good for 1,300 bbls. These wells proved consistent producers and built up a substantial daily production for the Lockport Field. This area, however, received a slight setback when Vacuum Oil Co.'s No. 7 State, a west offset to the discovery well, tested salt water in the sand and was abandoned late in June as dry at 6,769 feet. On the other hand the wells completed now are believed to be on the west edge and it is thought the field lies between them and the main Lockport Field. Within the last few weeks these wells have been pinched to a minimum flow and at present no additional tests are drilling.

Refugio Quieting Down

Development at Refugio has been decidedly on the wane since the first of the year. During the first two months the deepening of a number of former 5,500-foot wells to the 6,400-foot horizon resulted in a gradual increase in production to around 33,000 bbls. daily and for a time it seemed as though Refugio was due for a new period of activity. Completions in the 6,400-foot sand turned out more favorably and less erratic than earlier development in that sand during 1930 and a series of good wells were brought in. However, few new locations were made and as operators began to clean up on deepening old wells rigs were shut down and drilling steadily declined. About the same time early in March under a voluntary arrangement on the part of the operators all deep wells at Refugio were placed on quarter-inch chokes. Some of those wells previously had been flowing on three-eighths and even as high as half-inch chokes, resulting, it was claimed in an unnecessarily high gas-oil ratio and wastage of an estimated 200,000,000 feet of gas daily. Approximately 60 wells were affected by the restrictions. Not only was some conservation in gas effected by this but also there was some drop in oil production and so predictions that Refugio's production might again reach its peak of around 42,000 bbls., attained in March and April of 1930, have proved unfounded for the time being.

While the bulk of drilling at Refugio was confined to the already proved area in the deepening of old 5,500-foot wells to the 6,400-foot horizon, several scattered deep wildcats were drilled resulting in one important extension. That was United Production Corp.'s No. 1-A Fox, William Hews and L. Brown Survey, which, in a sand at a total depth of 5,886 feet, came in flowing at the rate of 28 bbls. an hour through quarter-inch chokes. This wildcat is 1½ miles north of what is known as the Lambert district, in which three producing wells have been completed, but is 3½ miles northeast of the main Refugio Field.

Victoria County Was Watched

The Bloomington district in southern Victoria County, located about 20 miles up the coast from Refugio and just across the line from Refugio County, was one of the most watched areas during the first six months. Ever since Lion Oil & Refining Co. completed two wildcat gas wells in a 3,700-foot sand during 1930, the area has been looked upon as a vast potential territory. Those two wells were quickly followed by the completion of another gas well by The Texas Company, 4 miles to the west. The gas is dry so far but Refugio and other fields of the lower coastal country have been developed under the same general conditions, being strictly gas fields at first. Thus the Lion gas wells have been taken as an indication of the existence of a prolific oil field either there or somewhere in that vicinity.

Lion's wells, Nos. 1 and 2 McFaddin, located in the Maria Traviesa Survey, since completion have been taken over by the United Gas Co. which holds the gas rights in the block although both companies have equal drilling privileges. No. 1 made 36,000,000 feet of gas, 1,750 pounds pressure, at 3,749 feet. No. 2, located 600 feet to the east, was drilled to a total depth of 6,454 feet, passing up the gas sand at first in an effort to drill deeper in search of possible oil. However, being dry at the deep level it was plugged back to the 3,700-foot gas sand at 3,736 feet and completed for 35,000,000 feet of gas, 1,275 pounds pressure.

The Texas Company's No. 2 McFaddin, 4 miles west, early this year centered interest on the area when it blew in while drilling at 2,025 feet. This apparently opened a new area as The Texas Company's No. 1 McFaddin, a 6,684-foot dry hole, separates it from the Lion wells. However, irregularities mark development in the lower Gulf Coast country and it may be that the two districts may be linked as one.

After this, development in that area received several setbacks with the abandonment of three tests in succession. Houston Oil Co.'s No. 1 McFaddin, located 1¼ miles south of the Lion gas wells, was dry at 4,635 feet, missing the sand. Lion Oil & Refining Co.'s No. 3-A McFaddin, 5,600 feet east of No. 1 McFaddin, tested salt water in the sand at 3,840 feet, and United Production Corp.'s No. 1-B McFaddin, 6,277 feet east of No. 1-A, tested salt water at 3,893 feet. However, new interest again was stimulated when T. B. Slick estate's No. 1 McFaddin, 3½ miles to the north of the gas wells, during June encountered a high pressure gas sand at 3,502-12 feet. Several successive attempts to complete this well met with failure when the pressure blew the screen up in the hole. On the most recent attempt in trying to reset screen the hole was deepened accidentally to 3,529 feet, and when the well was brought in under control it had a heavy flow of salt water with the gas. At latest report the well had been killed and the hole plugged to 3,512 feet, the former depth, where efforts will be made again to bring it in. That this well is an extension of the field is generally accepted as a fact. The sand is not the same as that from which the Lion wells are producing. However, it was found in those wells a little higher up but was not tested. At this time, United Production Corp. has another well on the 3,700-foot sand ready to test. This is No. 4-A McFaddin, a half mile to the north of the Nos. 1-A and 2-A which is at a total depth of 3,762 feet. This is looked upon as a possible link for the two areas. Of particular interest is a deep test now being started by Humble Oil & Refining Co., its No. 1 O'Connor, John Keating Survey, just over into Refugio County and west of The Texas Company's shut-in gas well. The latter company also is drilling its third test, No. 3 McFaddin, located in the John M. Rine Survey, 2,675 feet north and some west of No. 2, the gas well.

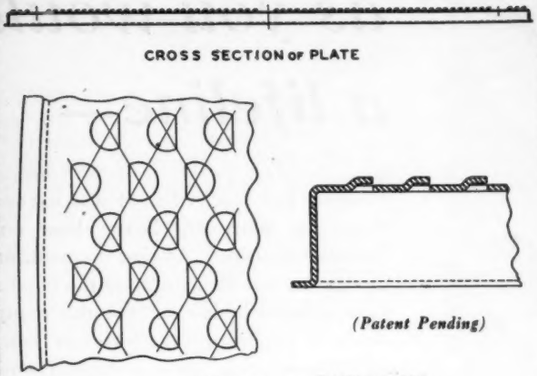
Sorrento Dome

First flank sand production at Sorrento Dome, Ascension Parish, Louisiana, was opened during April by Gulf Refining Co.'s No. 19 United Land Co., which came in flowing 300 bbls. daily from sand at 4,345-51 feet. The well is on the north side of the dome and was the result of numerous attempts on various sides of the dome to find production. Sorrento was opened in February, 1928, but production until this time has been from the cap rock in a small area on top the dome. In the cap, topped around 1,650 feet, four wells had been completed.

Sweet Lake's Deep Horizon

At Sweet Lake, Cameron Parish, Louisiana, Pure Oil Co. opened a new deep producing sand, the second deepest producing horizon on the Gulf Coast in its No. 10 Yount Lee Oil Co. This well in sand at 7,366-87 feet was completed in May flowing 1,217 bbls. of pipe line

Billions of Bubbles



There's a Lot To a Slot

IT'S really remarkable what a difference the shape and punching of a slot make.

To illustrate, there's the new Campbell High Efficiency absorber plate, details of which are here shown. This plate is a gratuitous improvement on the internationally-known "Oil-Froth" plate, whose efficiency has never been equalled by another make. The new plate is characterized by:

1. Simplicity—A single glance shows this.
2. Increased efficiency—Since each slot, by the very nature of its design, constitutes a direction-controlling portal (every hole is equipped with an individual deflector), the period of oil-and-gas contact is materially increased.

Imagine in a 7-foot absorber plate 4,600 holes, each equipped with a baffle that starts the gas surging in horizontal, zig-zag cross-flow! Imagine 4,600 separate gas currents jostling each other at every turn, trying to be the first to make the next section! What chance has a big bubble in such a mad rush? No chance at all. What, under other methods, might be a sizable bubble, here, as the result of thousands of head-on, side, and rear-end collisions, becomes a thousand tiny froth globules.

There's a lot to a slot. Ask for full information.

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Buy cat lines as you would a lifeline—

Ever in that "fix" when it was necessary to throw an unusually heavy load on your Manila Cat Line? At that moment, at least, you gave some thought as to the condition of your rope—whether or not the many hundreds of fine fibres on which you depend for strength were in good condition;—whether or not the line was *safe*.

Safety should be the outstanding requisite of every manila rope, affording protection to the men on the derrick floor and safeguarding against damage the equipment handled. Then there is the loss of valuable time due to failure of inferior cordage.

It pays in the end to buy not only the best grade of manila rope but the *only* one that has been *proven* over a period of years to be practically *Rotproof*—immune from serious damage by fibre deterioration. Most every oil field worker has at some time experienced trouble and added expense due to *dry-rotted* manila rope.

You cannot tell by looking at a piece of unused, clean Manila rope just what state the fibre is in; *dry-rot* may have already diminished its strength more or less. Eliminate the *hazards* of ordinary rope by using exclusively AMCO "ALL-WEATHER" Rope guaranteed best pure Manila, and the *only proven rotproof rope made*. The exclusive patented treatment *does not add weight* or make the rope greasy and this protective fibre treatment remains on the rope *indefinitely*. AMCO Manila is as nearly *waterproof* as rope can be made.

Look for this green yarn in the dark brown treated rope—it identifies the genuine Rotproof rope;—AMCO Manila is always covered with green burlap.

For every need, cat lines, bull ropes, derrick lines and general use rope, insist on

AMCO ALL-WEATHER ROPE

Made only by

St. Louis Cordage Mills

Eleventh & Soulard Sts., St. Louis, Mo.

oil through a three-eighths-inch choke, pressure 900 pounds on the casing and 650 pounds on the tubing. When first opened it flowed at the rate of 4,200 bbls. daily. This well had been completed in March in another new sand at 6,805-30 feet flowing 400 bbls. daily but failed to hold up.

New Sand at High Island

A new deep sand also was found at High Island in Galveston County, where Gulf Production Co.'s No. 10 Smith blew in from sand at 5,911 feet flowing 2,500 to 3,000 bbls. daily. This test had been drilled to 6,018 feet but with drill stem stuck was plugged back to the sand. The former deepest sand was at a total depth of 5,055 feet.

Deep Drilling Records Broken

Deep drilling records on the coast again were broken this year when Union Sulphur Co. drilled its No. 762 fee at Sulphur, Calcasieu Parish, Louisiana. This test went to a total depth of 9,250 feet, the deepest hole east of the Rocky Mountains. Drilling stopped in salt, topped at 5,864 feet, and thus failed to drill through salt and prove the existence of a possible overhang. In this attempt, the test set a record for the amount of salt drilled, having gone into the dome 3,386 feet. The hole was plugged back to a sand at 5,064-72 feet and completed for 1,400 bbls. daily through a half-inch choke.

GULF COAST

Summary of Completed Work in First Six Months of 1931

TEXAS

Field—	Comp.	Prod.	Dry	Gas
Allen	5	0	5	0
Barbers Hill	51	41,410	11	0
Batson	3	16	0	0
Big Creek	3	750	2	0
Blue Ridge	4	1,419	1	0
Boling	3	4	2	0
Clay Creek	14	1,975	5	0
Damon Mound	1	850	0	0
Esperson	6	767	1	0
Goose Creek	1	150	0	0
Hankamer	4	3,525	1	0
High Island	4	3,594	1	0
Hull	9	834	2	1
Humble	28	1,855	15	1
Lost Lake	2	0	2	0
Liberty	1	0	1	0
Mykawa	4	780	1	0
Moss Bluff	16	650	14	0
Nash	2	500	1	0
North Dayton	7	2,300	4	0
Orange	4	670	0	0
Orchard	4	1,600	1	0
Pierce Junction	28	12,812	6	0
Raccoon Bend	13	2,382	4	2
Refugio	75	17,722	22	5
Saratoga	13	453	0	0
Spindletop	14	4,036	4	0
West Columbia	1	0	1	0
Miscellaneous	60	2,421	53	5
Total	380	103,475	160	14
First 6 mos. 1930	541	222,015	158	22
Difference	161	118,540	2	8

LOUISIANA

Field—	Comp.	Prod.	Dry	Gas
Bayou Blue	4	195	3	0
Bayou Bouillon	2	0	2	0
Black Bayou	7	530	6	0
Edgerly	4	410	1	0
Hackberry	6	2,064	3	0
Jennings	8	320	2	0
Lake Barre	4	2,360	1	0
Lake Pelto	1	50	0	0
Lockport	16	6,834	2	2
Port Barre	2	350	1	0
Sorrento	1	300	0	0
Starks	3	640	0	0
Sulphur	5	2,954	2	0
Sweet Lake	2	1,650	0	0
Vinton	16	3,555	4	0
Welsh	2	10	1	0
White Castle	1	0	1	0
Miscellaneous	42	3,380	36	1
Total	126	25,522	64	3
First 6 mos. 1930	131	43,278	74	0
Difference	5	17,756	10	3
Total Gulf Coast	506	128,997	224	17
First 6 mos. 1930	672	265,293	232	22
Difference	166	136,296	8	5

COMPLETIONS BY MONTHS

	Comp.	Prod.	Dry	Gas
January	92	28,808	32	4
February	94	18,853	42	5
March	90	15,621	42	4
April	80	25,863	36	0
May	81	25,515	41	1
June	69	14,337	31	3
Total	506	128,997	224	17
First 6 mos. 1930	672	265,293	232	22
Difference	166	136,296	8	5

AVERAGE USE OF GASOLINE

Average consumption of gasoline per vehicle in the United States during 1930 is estimated at 556 gallons by the Department of Agriculture.

HART COUNTY FEATURED KENTUCKY FIELD WORK

(Continued from Page 109)

in the same field on the Harvey Gaines farm with an initial of 100 bbls.

April developed some remarkably fine producers in Hart County. Hupp, Duff & Bundy's No. 1 W. T. Spence farm, three-quarters of a mile south of the big well completed in April on the Bradley farm, southwest of Munfordville, struck a heavy flow of gas at a depth of 325 feet, estimated at 3,000,000 feet, but drilled to a total depth of 740 feet, the well producing an initial of 600 bbls. West of the Bradley well, Laramore, Snyder and others struck a 500-bbl. initial producer on the Grubb farm. In the Legrande Pool, B. F. Wilson and others' No. 2 Lee Wilson, produced 300 bbls. in 24 hours, and H. Z. Clark's No. 1 on the J. Gillock 100 acres had an initial of 200 bbls.

In May, Clarence Bundy and others drilled in No. 3 on the Elli Bradley farm in Logsdon Valley, 5 miles southwest of Munfordville, in Hart County, getting a 350-bbl. initial producer. G.M.C. Oil & Gas Co. drilled a wildcat on the B. F. McDonald farm, 3 miles east of the town of Ghent and 10 miles northeast of Carrolton, in Carroll County, which showed a volume of 3,000,000 feet at a shallow depth of 315 feet, opening a new gas field.

In June, unknown parties drilled a test on the Guy Griffith, 2 miles from Sebree and close to Petersburg, in Webster County, that was estimated as good for 2,000,000 feet, at 685 feet. G.M.C. Oil & Gas Co.'s No. 1 Robert Furnish farm, 2,000 feet north of the test of the same company on the McDonald farm, in Carroll County, showed a volume better than 5,000,000 feet. This new gas territory is about halfway between Louisville and Cincinnati.

KENTUCKY

Following is the record of field work in Kentucky for the first half of the year 1931, giving the total number of completions, the total initial oil production, the number of dry holes and the gas wells by month and by counties:

Completions by Month

Month—	Comp.	Prod.	Dry	Gas	Oil
January	50	1,070	20	12	18
February	51	1,958	17	16	18
March	50	627	17	17	16
April	66	3,348	24	11	31
May	18	660	8	5	5
June	23	180	2	12	9
First half 1931	258	7,853	88	73	97
First half 1930	551	11,810	166	47	238
Difference	293	3,957	78	26	241

Completions by County

County—	Comp.	Prod.	Dry	Gas	Oil
Warren	2	0	2	0	0
Barren	25	125	6	16	3
Ohio	17	122	7	6	4
Daviess	7	0	6	1	0
Hancock	22	667	3	3	16
Henderson	6	30	0	3	3
McLean	18	277	5	1	12
Hart	103	6,255	45	18	40
Webster	8	30	2	3	3
Muhlenberg	11	95	6	0	5
Hopkins	2	0	0	2	0
Christian	1	0	0	1	0
Metcalf	2	0	0	2	0
Caldwell	2	150	0	0	2
Butler	1	0	1	0	0
Carroll	3	0	0	3	0
Wayne	1	4	0	0	1
Estill	3	10	1	1	1
Greene	5	50	2	1	2
Wolfe	1	0	0	1	0
Lee-Owsley	3	8	0	0	3
Lawrence-Johnson	1	5	0	0	1
Clay	3	0	0	3	0
Knox	3	25	0	2	1
Leslie	2	0	2	0	0
McCracken	1	0	0	1	0
Floyd	4	0	0	4	0
Bell	1	0	0	1	0
Total	258	7,853	88	73	97

TENNESSEE

Completions by Month

Month—	Comp.	Prod.	Dry	Gas
January	1	0	0	1
May	3	0	0	3
First half 1931	4	0	0	4

Completions by County

County—	Comp.	Prod.	Dry	Gas
Coffee	1	0	0	1
Morgan	2	0	0	2
Franklin	1	0	0	1
First half 1931	4	0	0	4
First half 1930	9	0	0	9
Difference	5	0	0	5

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 44)

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 .... Shut down 1,050 ft.
Fields' No. 1 Usker, SE cor. Sec. 35-16-17 ..... Shut down 400 ft.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Weaver, SE cor. Sec. 3-2-35w. Shut down 3,501 ft.

RICE COUNTY

Solar Oil Co.'s No. 1 Zink, SE NW Sec. 3-19-10w ..... Abandoned 3,358 ft.; show water; top Silicious 3,335 ft.

Detrick & Langston's No. 1 Purcell, NW cor. Sec. 33-19-9w ..... Drlg. 3,271-79 ft.; Silicious lime; show oil.

Cress et al's No. 1 Sharp, SE NE Sec. 13-20-10w ..... Show oil 3,107-15 ft.; Silicious 3,-330-36 ft.; estimated 1,500 bbls.; shut in.

Allison-Fitzwilliams' No. 1 Blake, NE NW Sec. 9-18-10w. Drlg. 2,740 ft.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW Sec. 17-19-16w ..... Drlg. 3,705 ft.

RUSSELL COUNTY

Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w ..... Shut down 3,274 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w .... Show oil 3,090-94 ft.; shut down. 3,504 ft.; plugging back to 3,-189 ft.

SEDGWICK COUNTY

Magnolia's No. 1 McLaughlin, NW cor. 31-28-1w ..... Drlg. 725 ft.
Buck et al's No. 1 McNananan, NE NW NW Sec. 2-29-1. Drlg. 3,080 ft.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w ..... Fishing 2,710 ft.

SHERIDAN COUNTY

Flo et al's No. 1 Shoemaker, SE SW SW Sec. 27-7-26w.. Shut down 2,445 ft.

STAFFORD COUNTY

Rosenthal, Stanolind and Amerada's No. 1 Gray, C NE Sec. 11-24-13w ..... Shut down 2,900 ft.

STEVENS COUNTY

Argus Prod.'s No. 2 Christopher, C NE Sec. 10-33-39w .. Shut down 5,521 ft.

SUMNER COUNTY

Tighe et al's No. 1 Thieson, C NW SE SE Sec. 22-34-2 ... Drlg. 625 ft.
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW Sec. 6-34-2 ..... Spudding.
Spencer et al's No. 1 Porter, NE SW Sec. 12-33-4w ..... Shut down 2,550 ft.
Otstot et al's No. 2 Marlow, C SE NW SE Sec. 22-33-3w. Shut down 4,070 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3.... Shut down 1,720 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

Ault et al's No. 1 Hall, SE NW Sec. 25-9-19 ..... Shut down 200 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e ..... Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e.. Shut down 2,387 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 ..... Shut down 1,645 ft.

KAY COUNTY

Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1 ..... Location.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2 ..... Cleaning out 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w ..... Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w ..... Drlg. 740 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE Sec. 16-6-19 ..... Shut down 1,542 ft.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 5,733 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 .. Shut down 1,011 ft.

OKFUSKEE COUNTY

E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10 Shut down 3,690 ft.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor. Sec. 21-11-3w ..... Shut down 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w ..... Shut down 5,515 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE NW SE Sec. 17-12-4w ..... Shut down 6,700 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5 ..... Shut down 1,950 ft.
Sperry et al's No. 1 Mullrap, SE SW Sec. 2-22-5 ..... Wilcox 3,514-52 ft.; water; abnd.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5.... Rig.

PITTSBURG COUNTY

J. Morrison's No. 1 Fowler, NE SE Sec. 13-7-17 ..... Rig.
C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14 ..... Rig.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w ..... Shut down 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w.... Drlg. 3,010 ft.

SEMINOLE COUNTY

Sunray Oil Co.'s No. 1 Sunray, NW SE Sec. 35-5-5 ..... Location.

WASHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w. Drlg. 1,927 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-15 ..... Shut down 1,050 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Western Prod. Co.'s No. 1 Gable, C NE Sec. 24-4-13 .... 9,000,000 ft. gas 2,750-2,860 ft.; completed.
Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-1E.. Shut down 4,750 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 ..... Shut down 530 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10. T. D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... T. D. 740 ft.; plugged back to 450-80 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE Sec. 18-4s-8w ..... Location.

LOVE COUNTY

Autrey et al's No. 2 Cross, CWL SE NE Sec. 27-6s-2 .... Show oil and gas 970-72 ft.; drlg. 1,009 ft.

MARSHALL COUNTY

Taliaferro et al's No. 1 fee, NW SE SE NW Sec. 34-5s-5 ..... Shut down 580 ft.
McCrory et al's No. 1 Little, NW SW Sec. 30-7s-6 ..... Bailing 10 bbls. of oil 495-97 ft.; recemented csg.; pumped 110 bbls. 30 hrs.
D. H. Curry's No. 1 Ward, NE SE SW Sec. 15-5s-6 ..... Shut down 2,310 ft.

McCURTAIN COUNTY

The Oil Journal's No. 1 Parks, C NE NW Sec. 9-6s-23 ... Shut down 50 ft.
Stewart's No. 1 Patterson, C SE SE Sec. 7-6s-24 ..... Shut down 840 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE Sec. 32-2s-15 ..... Shut down 840 ft.
Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-3s-18 ..... Location.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE Sec. 15-3s-5w .... Drlg. 830 ft.

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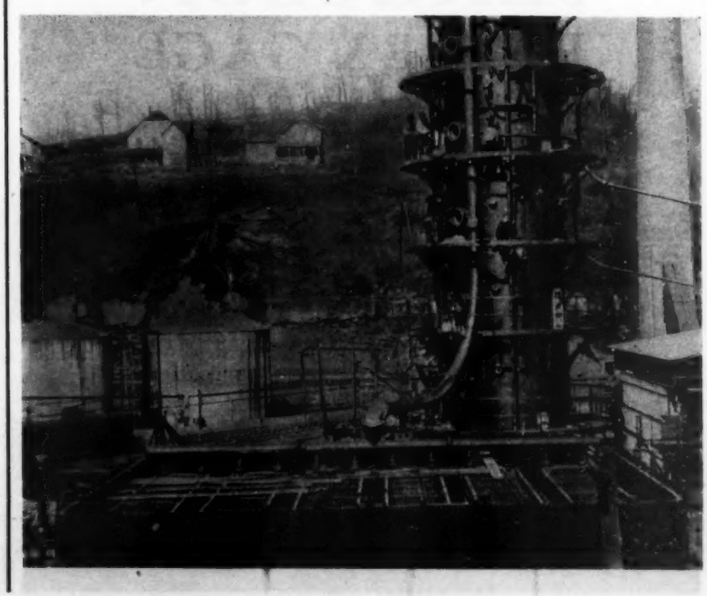

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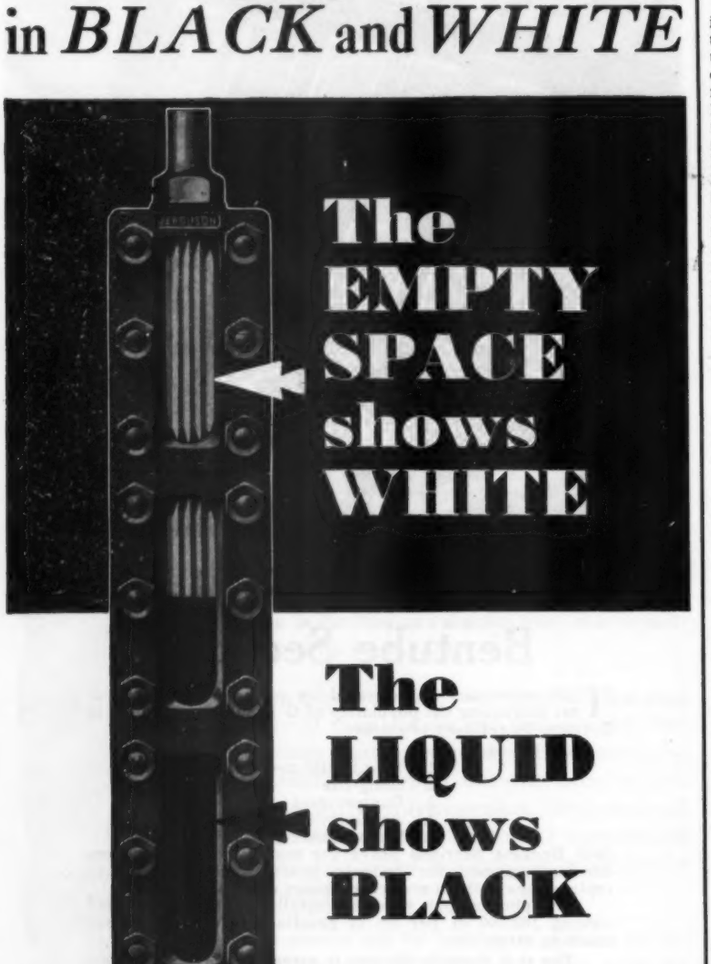

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MYSTIC AVE. AND NORTHERN ARTERY

SOMERVILLE, MASS.

FEW NEW DISCOVERIES IN SHREVEPORT AREA

(Continued from Page 107)

its No. 1 DeMoss, Section 22-22-13. At this writing the operators are arranging to drill plug and test after setting 6-inch casing at 3,026 feet. Operators who have faith in this particular area refer back to 1917 when the Dallas Oil Co. completed its No. 1 Scovall & Gaines, one-fourth mile west and in the same section as the Flint River test, and which made from 1,200 to 1,500 bbls. of oil daily for a period of several days. The total depth of the old well was 2,824 feet with 400 feet of open hole, and it is the consensus of opinion of those familiar with the formations that the oil was coming from the Blossom sand at 2,600 feet. The Flint River core from 3,046 feet has been pretty well defined as coming from the Woodbine. The original Dallas Oil Co. well is still making some oil with salt water from an open hole.

Salt Water Encroachment

As practically the whole Monroe and Richland gas area is owned by one or two giant combinations, one of which is the Electric Bond & Share, the decline in production may be the result of a conservative drilling program mapped out by the operators to supply the demand as needed. However, recent completions in the field of gas wells gauging less than 5,000,000 feet with the rock pressure below 500 pounds would indicate that the present paying horizon has about reached its peak. Salt water is also fast encroaching upon many of the wells completed from the 2,400-foot depth. The existence of a second sand in this area has been known for several years, several wells having been completed slightly below 3,000 feet, but no energetic prospecting for it developed as long as the upper pay in the proven fields continued to produce. The drilling of this second horizon may be necessary in the near future if the new wells brought in from the upper sand continue to gauge the low open flow as shown by many completions during the past six months.

Zwolle Field Extended

Although the Zwolle Field in Sabine Parish has been extended to dimensions of a large oil field geographically, the daily average production has remained practically stationary or on the decline during the past six months. The field proper, starting from R. L. Gay's No. 1-A Bowman-Hicks in Section 34-8-12, 3 miles east of the town of Zwolle, has been extended both north and south of this section, but the longest extensions have been to the east and west. At the present time, the producing area covers a strip about 20 miles long and from one-half to 3 miles wide, in a half-moon shape, extending from Section 1-7-11 on the east to Section 1-7-13 on the west. The extreme southeastern production was uncovered in March by the completion of Merritt and others' No. 1 Byrd, Section 1-7-11, at 2,445 feet, gauging 1,200 bbls. daily. This well extended the field 2½ miles in that direction. The results of this test started extensive drilling in that sector, but to date only a few wells have been brought in with initial production equal to the Merritt well. The best well, extending to the west was Stovall Drilling Co.'s No. 1 Nulton, Section 1-7-13, which came in with an initial flow of 1,000 bbls. daily from 2,357 feet. This well is 1½ miles southwest of Zwolle townsite production and a direct offset to the south of Buttram Oil & Gas Co.'s No. 1 Hale in the same section, completed in March as a 35-bbl. pumper from 2,326 feet. The Zwolle production comes from crevices in the chalk rock and the odds are decidedly against the operator hitting one of these crevices. The completion records for Sabine Parish, consisting largely of the Zwolle area, shows a total of 72 completions for the first six months of 1931 with 46 dry holes and 26 producers. This makes approximately two dry holes for each producer and this is a fair example of the completions within the so-called proven lines in the Zwolle Field.

Prospecting for the upper and lower Trinity horizons in this division experienced little activity, except in areas already proven. An active drilling was expected for these formations, particularly in North Louisiana, but due to the low prices of crude and the high cost of drilling these deep tests, this development did not materialize. In the Rhodessa district of northwest Caddo Parish, which was brought in in August, 1930, by R. W. Norton's No. 1 Hill, Section 33-23-16, as a 12,000,000-foot gasser, several good wells have since been completed, all of which had a better initial flow than the discovery well. The Norton interests sold their holdings in this field to the United Production Co., a subsidiary of Electric Bond & Share Co., who immediately began development. The first well by this company, its No. 1 French, in Section 34-23-16, 1,800 feet east of the discovery well, was completed in January, gauging 20,000,000 feet with 2,350 pounds rock pressure. The production is coming from broken sandy oolitic lime of the Trinity formation at the 5,500-foot level. To date, this company has completed three other good wells in this field, all of which flowed more than either the first or second wells, and the largest was No. 1 Wall, Section 33-23-16, with an initial flow of 75,000,000 feet and 2,330 pounds rock pressure. The gasoline content runs as much as 2,000 gallons per 1,000,000 feet.

Failures in Claiborne

Two wildcat deep tests in Claiborne Parish did not fare so well. The Prairie Oil & Gas Co.'s No. 1 Shackelford, Section 30-23-5, was abandoned at 5,150 feet without having a show of anything along the log. Nothing in the way of oil or gas was found in the Oolitic lime or other formations of the upper Trinity where pay is encountered in Sugar Creek, Claiborne Parish; Bellevue, in Bossier; Pine Island, in Caddo; and Panola, in East Texas. The test was located on a 30,000-acre block, 16 miles east of the Haynesville Field and about 20 miles northeast of the Homer Field. This company had a contract for a one-half interest in the block with three wells to be drilled, but to date no other test has been started. The other Trinity test in Claiborne was Louisiana Oil Refining Corp.'s No. 10 Langston, Section 19-21-7, on the southwestern flank of the old Homer Field. Looked upon as a means of restoring this field, which already has two producing horizons, to its accustomed place in the front rank of production, the test was closely watched during its operation. After barren results all the way down, the well was abandoned at 4,504 feet.

Developments in Bethany Field

Since the Ark-La Pipe Line Co. completed its No. 2 Brumble, B. C. Jordan Survey, in the old Bethany Field of Panola County, East Texas, several wells have been drilled to this sand in that area with varied results. This well was completed at 4,746 feet in the Glenn Rose formation, making 80,000,000 feet of highly saturated gas with 2,100 pounds rock pressure. Five Trinity wells have been completed in this field since the first of this year, four of which had an initial flow of over 20,000,000 feet, while one resulted in a small flow of gas with large quantities of salt water. In fact, salt water seems to be the hazard to gas production from this depth in that field, the last one completed, United Production Co.'s No. 10 Werner, B. C. Jordan Survey, gauging 11,800,000 feet from 4,720 feet and a spray of approximately 400 bbls. of salt water daily. The Daisy Oil & Gas Co.'s No. 1 Rucks, John Palmer Survey, a wildcat adjacent to the Bethany Field, is below 4,000 feet on a Trinity test, and in the southern part of Panola, Moses & Wallace have spudded in No. 1 Daniel, Isabel Hanks Survey, with a contract to drill 5,000 feet. The only other deep test being drilled in the border counties of East Texas is Ryan Consolidated Petroleum Corp.'s No. 1 Key, E. Carroll Survey, in Harrison County. This test is located on a 15,000-acre block south of Marshall near Roseborough Springs and is at present drilling at 4,840 feet with no showing to date. The well will be drilled to 5,300 feet ac-

cording to the contract. There is plenty of probable production territory in this division for deep drilling which is expected to be resumed as soon as the oil situation is stabilized.

Arkansas Very Quiet

Arkansas all but eliminated itself from the picture as far as new operations are concerned, by its inactivity. The wildcats completed showed no indications of uncovering new pools, 23 of the 42 completions being dry holes with 5 gas wells and 14 small producers in the proven fields. The most interesting wildcat is being drilled by the Lion Oil Refining Co., a deep test in the old Smackover Field near the Ouachita County line. The well is listed as No. 9-A G. P. Hayes in Section 4-16-15. This test had 5 feet of sand showing oil at 4,004 feet, but a test failed to produce oil, and salt water sand was encountered from 4,017-25 feet. The total depth at the present writing is 4,457 feet in red gummy shale with no other shows encountered. The operators will drill to 5,000 feet or more. The five gas wells attributed to Arkansas came from so-called wildcat counties of Crawford, Franklin, Johnson and Sebastian. The Crawford County gasser had an open flow of 20,000,000 feet from 960 feet, and Johnson County, after several failures of late, came through with two producers gauging a total of 42,800,000 feet.

Work in Mississippi

Drilling activity in Mississippi increased from only 6 completions in four counties for the first six months of 1930 to 42 completions in 12 different counties during the first half of 1931. Of this number, 27 were dry holes, 15 gas wells and no new oil wells. The gas wells were all in the Jackson district of Hinds and Rankin Counties, with the exception of one small gasser completed in the Amory Field of Monroe County, the first gas-producing area discovered in Mississippi. The Jackson Field, composed of the two counties mentioned above, recently completed its forty-third gas well, 15 of which were brought in since January of this year with a total open flow of 330,500,000 feet, an average of more than 22,000,000 feet to the well. The wildcatting in this State has been barren of results, except for the geological information obtained for future operations. A great many of the tests discontinued operations for the lack of funds before reaching a depth where the pay should be encountered, but two deep tests were completed in the State and several more are active at the present time. The Gulf Refining Co. abandoned its No. 1 Hamilton, Section 12-5-1e, Rankin County, after drilling to 4,087 feet. The only show of oil encountered in the test was at 2,620 feet with salt water at 2,640 feet. The drill bit was in ignaceous rock when the well was abandoned. In Clark County, the same company abandoned its No. 1 Box, Section 11-2-15, at 4,515 feet without encountering a paying sand for the entire depth. The Ohio Oil Co. is drilling its No. 1 Cantrell, Section 16-15-5, in Clay County, with cable tools. It is a deep test on a block of 35,000 acres. This well is now down to 4,308 feet and will be drilled to 5,000 feet or more.

NORTH LOUISIANA

Completions by Parishes First Six Months 1931

	Comp.	Prod.	DryGas*	
Bienville	3	0	3	0
Bossier	10	0	3	7
Caddo	16	385	5	5
Claiborne	4	0	4	0
Concordia	7	0	6	1
DeSoto	9	40	8	0
LaSalle	2	15	1	0
Natchitoches	1	0	1	0
Ouachita	2	0	0	2
Red River	1	0	1	0
Richland	29	0	3	26
Sabine	72	17,123	46	0
Tensas	1	0	1	0
Union	5	0	0	5
Vernon	1	0	1	0
Webster	2	0	2	0
Total	165	17,563	85	46

*Gas production: Bossier, 81,374,500 feet; Caddo, 198,264,700 feet; Concordia, 7,000,000 feet; Ouachita, 5,186,875 feet; Richland, 765,122,332 feet; Union, 13,798,000 feet; total, 1,070,746,407 feet.

Completions by Months

	Comp.	Prod.	DryGas	
January	31	9,190	15	8
February	32	2,175	17	11
March	25	1,665	17	4
April	27	590	14	8
May	25	2,553	11	9
June	25	1,390	11	6
First 6 mo. 1931	165	17,563	85	46
First 6 mo. 1930	384	32,254	136	109
Difference	219	14,691	51	63

ARKANSAS

Completions by Counties First Six Months 1931

	Comp.	Prod.	DryGas*	
Clay	1	0	1	0
Columbia	1	0	1	0
Crawford	1	0	0	1
Franklin	1	0	0	1
Garland	1	0	1	0
Grant	1	0	1	0
Hot Springs	1	0	1	0
Johnson	2	0	0	2
Lafayette	2	0	2	0
Little River	1	0	1	0
Logan	1	0	1	0
Miller	3	0	3	0
Ouachita	6	138	2	0
Pope	2	0	2	0
Sebastian	1	0	0	1
Union	15	1,940	5	0
Washington	2	0	2	0
Total	42	2,078	23	5

*Gas production: Crawford, 20,000,000 feet; Franklin, 8,500,000 feet; Johnson, 42,800,000 feet; Sebastian, 3,250,000 feet; total, 74,550,000 feet.

Completions by Months

	Comp.	Prod.	DryGas	
January	9	105	5	2
February	5	215	3	1
March	5	390	2	1
April	11	943	4	1
May	8	250	7	0
June	4	175	3	0
First 6 mo. 1931	42	2,078	23	5
First 6 mo. 1930	74	2,298	41	4
Difference	32	220	18	1

EAST TEXAS GAS AREA

Completions by Counties First Six Months 1931

	Comp.	Prod.	DryGas*	
Bowie	1	0	1	0
Cass	3	0	3	0
Harrison	11	0	11	0
Marion	5	0	5	0
Panola	9	0	5	4
Sabine	1	0	1	0
Shelby	1	0	1	0
Total	31	0	27	4

*Gas production: Panola, 68,062,000 feet.

Completions by Months

	Comp.	Prod.	DryGas	
January	7	0	5	2
February	2	0	1	1
March	2	0	2	0
April	12	0	11	1
May	3	0	3	0
June	5	0	5	0
First 6 mo. 1931	31	0	27	4
First 6 mo. 1930	22	0	3	19
Difference	9	0	24	15

MISSISSIPPI

Completions by Counties First Six Months 1931

	Comp.	Prod.	DryGas*	
Chickasaw	1	0	1	0
Clark	1	0	1	0
Covington	2	0	2	0
Grenada	2	0	2	0
Hinds	15	0	6	9
Humphrey	1	0	1	0
Madison	1	0	1	0
Monroe	3	0	1	2
Neshoba	1	0	1	0
Rankin	10	0	6	4
Smith	1	0	1	0
Warren	4	0	4	0
Total	42	0	27	15

*Gas production: Hinds, 193,000,000 feet; Monroe, 2,500,000 feet; Rankin, 135,000,000 feet; total, 330,500,000 feet.

Completions by Months

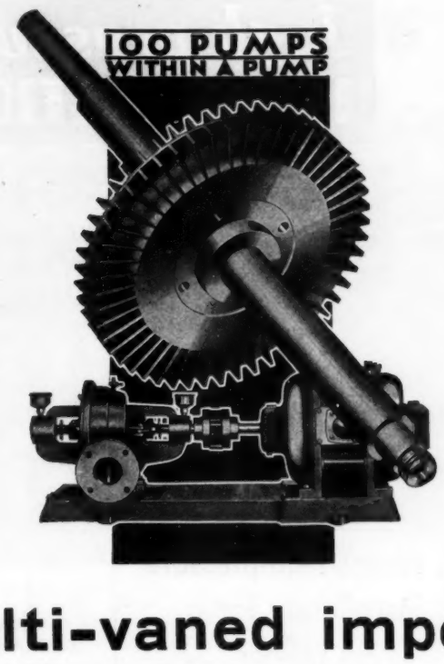
	Comp.	Prod.	DryGas	
January	13	0	7	6
February	8	0	5	3
March	2	0	2	0
April	11	0	7	4
May	7	0	6	1
June	1	0	0	1
First 6 mo. 1931	42	0	27	15
First 6 mo. 1930	6	0	4	2
Difference	36	0	23	13

DOGS AND CATS DIE BY GAS

POMONA, Calif., July 27.—Natural gas is the fuel used at the new crematory for deceased dogs and cats recently built at the city pound. The crematory disposes of small animals killed by automobiles in the city and of unclaimed animals put to death at the pound. The installation is believed to be the first of its kind.

GALLON WEIGHS 6 POUNDS

Gasoline weighs approximately 6 pounds per gallon.



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IMPROVEMENT SHOWN IN WESTERN CANADA FIELDS

(Continued from Page 109)

maximum open flow. The purpose is to reduce the waste of natural gas. The field has been producing upwards of 300,000,000 feet a day, of which the greater part, after extraction of the crude naphtha, is blown into the air and burned. It is claimed that as a result of this practice, and the too close drilling of wells in some areas, the field is showing signs of depletion.

These restrictions, coupled with general financial conditions and oil price cuts, have resulted in a slackening of drilling operations throughout the Turner Valley; so that activity this year is considerably less than it was in 1930. A recent summary of the Turner Valley area shows the following tests:

	Prod.	Drlg.	S.D.	Abd.	Ttl.
North Turner Valley	3	1	9	5	18
Cen. Turner Valley..	43	2	17	9	71
South Turner Valley	41	7	14	4	66

Of the tests shut down, a considerable proportion, especially in North Turner Valley, show little prospects of resuming. No new locations have been listed; though there are a number of locations made in recent years on which no work has yet been done.

South Turner Valley

South Turner Valley continues to provide the major portion of the production. A couple of years ago, Section 20-19-2w5 was the outstanding portion of this field, due to the large initial production secured by the Home Oil Co. in its earlier wells. Later tests by the same company failed to repeat the earlier performances; and though Home wells still show fair production from month to month, production in this section has markedly declined and there is no new drilling under way.

To compensate, three important producing areas have been opened to the south of the Home tract. In Section 16-19-2w5, East Crest Oil Co.'s No. 2-A last fall proved a large well, and No. 3 has since been finished with a fair production from the lime. Still further south, Mercury Oils' No. 1, in Section 4-19-2w5, is the biggest producer in the field, around 400 bbls. a day, and several close-in tests are being drilled, chiefly by the Mercury and allied interests. In Section 9-19-2w5, Commonwealth Petroleums' No. 1 got a good production in the lime.

In the extreme south, Merland Oil Co.'s No. 1, in Section 27-18-2w5, finished by Imperial Oil, Ltd., is reported a good producer; and has given an impetus to some new drilling in that area. The Mayland-Lowery area, Section 17-19-2w5, which last year developed some good producers, is being further tested by Imperial Oil, Ltd. Mayland Oil Co.'s No. 6 has been finished with around 200 bbls. a day; Lowery Petroleums' No. 2 is testing production; Southern Lowery's No. 1, in Section 9, is a small producer, and No. 2 is testing.

Imperial Oil, Ltd., activities have of late been pretty well limited to the southern portion of the field.

Central Turner Valley

In Central Turner Valley, there have been no spectacular completions this year. Royalite's No. 25, the last test completed this year, is making about 75 bbls. a day. No. 4 gusher is being cleaned out and recased in the hope of restoring production.

In Central Turner Valley, Dome Oils' No. 2 got a flow of light crude, estimated 75 bbls. a day, from the upper sand, and is now testing production in the lime. This test in Section 36-19-3w5, may extend the producing area considerably. Structure Oil & Gas' No. 1, Section 31-19-2w5, is making between 60 and 90 bbls. Several smaller wells have been finished, and there has been some deepening and cleaning out of old producers.

North Turner Valley

With two deep producers and one gas well, the North Turner Valley area has proven a deep proposition, and most of the tests started several years ago have been shut down without going to conclusive depths. Faulted conditions are understood to be responsible for the more or less definite abandonment of a number of tests. The two deep producers, Foothills' No. 1 in Section 27-20-3w5, and Model Oils' No. 1 in Section 22-20-3w5, have held up remarkably well, materially increasing their initial production. United Oils' No. 4, Section 24-20-3w5, the only test now active, is drilling in the lime and apparently close to production.

Red Coulee Field

With four producing wells, the Alberta end of the Red Coulee Field is maintaining a steady production around 210 bbls. a day. The only test completed this year was Southern Alberta Exploration Co.'s No. 2, which, only 440 feet from No. 1 producer, finished dry at 2,600 feet. Tentative arrangements by Alberta Pacific Consolidated Oils, Ltd., to complete Devonshire Oils' No. 1 in Section 10-1-16w4, have fallen through.

Two outlying areas which may represent extensions of the Red Coulee Field but are more likely separate structures are being tested. To the northwest, Dalco Oil & Gas Co.'s No. 2, in Section 19-2-17w4, is testing the deeper formations below 3,150 feet. An important new test, Parco Oil Co.'s No. 1 Twin River, has just spudded in in Section 34-1-20w4, considerably west of the Red Coulee Field.

Border Fields

In the Border areas of southern Alberta, some important wildcat tests are being drilled and while no commercial production has been encountered, encouraging showings have been reported.

On the Spring Coulee structure, Alberta Pacific Consolidated's No. 1, Section 15-4-23-w4, attained a depth of 6,191 feet, encountered several oil sands, and will probably test these by shooting.

In the Milk River area, Commonwealth Petroleums' No. 1, Section 9-3-15w4, is shut down at 4,932 feet; shows of oil and gas were reported in the Devonian lime but no commercial production.

In the Taber district, Alberta Pacific Consolidated's No. 1 Cole-Hunter, Section 11-10-17w4, is deepening after testing an oil sand encountered by the Cole-Hunter syndicate last year at 3,320 feet. This test, started by English capital, is being finished by the Alberta Pacific interests.

Perhaps the most spectacular showing was that secured by Hudson's Bay Oil & Gas Co.'s No. 1 Keho, Section 17-11-22w4, in the Keho Lake district. This test encountered two stray oil sands in the Benton shale at 3,680 feet and 3,776 feet, with indicated production around 62 bbls. a day of 32.6 Beaume crude. It is now deepening in the lime.

Texas-Imperial's No. 1, Section 22-8-22w4, a wildcat test drilled jointly by Imperial Oil, Ltd., and Texas Oil Co. of Canada on a structure near Lethbridge, has been delayed by fishing trouble, but is at last making good headway.

Another interesting wildcat is Mayland Southern's No. 1, Section 4-1-9w4, on the Canadian end of the Revere Dome; this structure is a good gas producer on the Montana side and the Mayland test got an exceptionally strong flow at shallow depth and is deepening.

Drilling in the Foothills

Activity in the foothills belt east of the Rocky Mountains is decidedly less pronounced than in recent years. Only a few tests have been working this year, and a number of areas tested in 1929-30 are now completely quiescent. The Waite Valley structure west of Turner Valley, the Morley Reserve area, and the Highwood-Sinclair structure south of Turner Valley, are, temporarily, at least, eliminated as prospects. On all these structures the Madison lime has been tested without success, though only a few of the tests have got the lime horizon and the results can not be pronounced conclusive.

Near the international boundary, Weymarn Petroleums' No. 2, Section 7-6-1w5, is being completed by Alberta Pacific Consolidated Oils, Ltd., and is below 3,230 feet. Further north, a test of the promising Watson structure near Lundbreck, has been definitely started by Raven Oils in Section 20-9-2w5. Two tests are resuming activity in the Moose Mountain district, and Moose Oils' No. 1, on the Moose Dome, is preparing to go

deeper. North of Calgary, Carteir-Majestic's No. 1, Section 36-31-7w5, on the Monarch structure has done some work. South of Calgary, Ranchmen's Gas & Oil Co.'s No. 1, Section 13-20-29w4, is down 4,875 feet with a deep test of the Aldersyde structure.

Ribstone Field

The Ribstone Field, in East Central Alberta, is being further developed and is marketing some crude to the Canadian Pacific Railroad for locomotive fuel. This outlet for the heavy crude promises to stimulate development in addition to giving the field a chance to show what it can do. There are four producing wells, and two tests drilling. One of these, Rayco Oils' No. 1, having failed to get production in the Ribstone sand, is deepening for a test of the underlying lime.

Wainwright Field

Lack of any large market for its heavy crude has also been a handicap to the Wainwright Field. A number of wells have been drilled to production at various times, and the output of several of these is handled in a small plant, which retails the product locally. Two old producing wells are being cleaned out and refitted for production, and a new test is drilling, with prospects of some additional work being done later in the season.

The Kinsella gas field has been inactive, as a result of the failure to secure natural gas franchises for the Saskatchewan cities.

Northern Alberta Wildcats

Two interesting wildcat tests are being drilled in Alberta north of Calgary. One of these is Hudson's Bay Oil & Gas Co.'s No. 1 Paintearth, in Section 27-39-15w4, near Castor, which is now testing the lime below 4,497 feet. It is the only test of the lime ever drilled in this area.

Further north, on the Athabaska, Crudome Oils' No. 1 is being started in Section 24-72-5w4, not far from Mirror Landing. This venture is being financed by Toronto interests and is expected to tap the Athabaska tar sands at a considerable distance from the outcrop, where they may be expected to still retain a good portion of their petroleum content. The test, handicapped by transportation dificulties, is expected to start in July.

Manitoba Operations

Operations in Manitoba have been limited to the wildcatting by Commonwealth Petroleums, Ltd., of Calgary, in the southwestern part of the province near Manitou. Commonwealth's No. 1, Section 23-2-4WPM, got a fair gas flow and was finished at 1,200 feet; and No. 2, Section 26-2-9WPM, is drilling.

Drilling in Saskatchewan

Two tests have been active in Saskatchewan. In the eastern section of the province, Simpson Oil Co.'s No. 1, Section 9-29-25w2, is continuing in the lime around 3,000 feet without conclusive results. Near Regina, Aladdin Oil & Gas Co.'s No. 1 at Pilot Butte, Township 17-18w2, is below 2,160 feet.

Investigations of the Saskatchewan end of the Ribstone structure by Dr. G. S. Hume of the Geological Survey of Canada are being carried on this summer, and may stimulate a renewal of interest in that area, which is regarded as a promising gas prospect.

Drilling activity is fairly marked in southern British Columbia. In the Sage Creek district, Crow's Neat-Glacier Oil Co.'s deep test is cleaning out; and British Columbia Oil & Coal Co.'s test is resuming work. In the Kelowna district, Okanagan Oil & Gas Co.'s No. 1, Section 2-26-Osoyoos, is below 1,700 feet; and in the Cariboo district, the Patrick Syndicate's test on the Australian Ranch near Quesnel has got an encouraging oil show. International Pipe Line Co. has been drilling for gas on Lulu Island near Sumas Prairie; and in the former area the Altamont Oil Co. is starting a test. Outside Sage Creek, none of the British Columbia tests except the Kelowna venture have been carried to any great depth.

PIGEONS CARRY OIL MESSAGES

Operators of isolated wildcat oil wells of Texas employ homing pigeons to carry reports from location to home office.

EAST COAST EXPORTS CONTINUE TO DECLINE

(Continued from Page 113)

possible that Russia may be prevailed upon to participate in a scheme of apportionment in world markets, although this contingency is held to be extremely unlikely unless conditions in Russia should undergo a radical change.

Drop in Naphtha Movement

The sharpest drop in export movement, among the major products, during the first six months of the current year was registered in naphtha, exports of which totaled but 4,038,000 gallons during the first quarter, as compared with 14,732,000 gallons in the first three months of 1930 and 16,087,500 gallons in the first quarter of 1929. The second quarter's exports of this product failed to show any improvement, totaling 3,240,000 gallons, against 7,330,000 gallons in the second quarter of 1930 and 16,425,900 gallons in the second quarter of 1929.

On the other hand, the best showing was made by paraffin wax, exports during both the first and second quarters topping shipments during the comparable months of 1930 and 1929 by substantial figures.

Lubricating oil, the "big money" item among export products, suffered substantially during the first half of the current year. Exports of lub oils from New York for the first quarter were 19,086,000 gallons, a drop of some 6,000,000 gallons from the total of 24,107,000 gallons exported in the first quarter of 1930 and almost 10,000,000 gallons under the total for the first quarter in 1929. The second quarter's exports, however, picked up substantially, amounting to 23,867,000 gallons, a gain over the 21,286,000 gallons exported in the second quarter last year and likewise in excess of the 23,111,800 gallons shipped into export channels from New York during the second quarter of 1929.

HIGH TAXES CAUSE DECLINE

Steadily rising taxes on motor vehicles have become such a burden as to result in curtailing the use of the vehicles. Reaching a new peak in 1930, it represented so great a cost that at least 134,000 owners failed to register their cars. First evidence that the pyramiding of registration fees, gasoline taxes, privilege taxes and other levies actually had brought about the long suspected result, has been presented by the National Automobile Chamber of Commerce after a study of United States Bureau of Public Roads reports on registrations and tax collections for 1930. It was found that while countrywide registration increased, there was a decline in 20 states, notably among those with the highest per vehicle tax average.

IMPORTANT DISCOVERIES ARE MADE IN KANSAS

(Continued from Page 95)

The deep sand production in that area was extended south by the completion of the thirty-fourth well in the field in February. The test was Fisher and Lauck's No. 2 Schafer a twin in the NE cor. SE NW, Section 30-27-2. The oil was found in the deep sand at 3,256-57 feet. The oil was 1,000 feet in the hole in a few hours. The well made around 600 bbls. when completed.

In Harvey County new wells were completed during the first half of the year extending the older producing areas. The Washoma Petroleum Co.'s No. 1 Zook, C NW SW, Section 36-22-2w, was estimated to have made 650 bbls. of oil in 10 hours flowing into the slush pits from the chat horizon. The well extended production in the Palmer Pool and it was the third chat producer completed in the area. It was a quarter of a mile south of the discovery well which was completed more than a year ago.

The production in Harvey County was curtailed to 15 per cent of its potential in March on account of the pipe line outlet which was restricted to a few hundred barrels a day.

Big Wells in Rice County

The first week in April a wildcat test

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in Rice County found a showing of oil which later developed into a 1,000-bbl. well, opening another producing area in the county. The test was Hinkle, Strak and Cress' No. 1 Sharp, SE cor. NE, Section 13-20-10w, southwest of the Schurr Pool, near Raymond. The oil was soon slopping over the top of the hole from the Silicious lime at 3,330-36 feet. The oil rose 3,000 feet in the hole in eight hours. The test was later drilled deeper to a total depth of 3,339 feet and it was estimated to have increased its flow to 1,500 bbls. a day. The well opened an entirely new producing area in the county. It was unable to take a production test and was shut in to await a pipe line connection.

In the southeastern part of Rice County the Welch Pool was extended by new wells. Phillips Petroleum Co. and others' No. 1 Miller, SW cor. NE, Section 3-21-6w, flowed 100 bbls. of oil in an hour and 15 minutes from the chat at 3,362-80 feet. The next day the well made 226 bbls. of oil in 9½ hours.

The next well completed in the Welch Pool was in June, and it is believed to be the largest well ever found in the field. It was estimated to be good for 4,000 bbls. a day. The test was Hipple & Rogers' No. 1 Rainey, NE cor. NW NE, Section 3-21-6w, Rice County, and it was first completed about six months previous for 2,000 bbls. a day, the operators decided to drill it deeper and it increased its flow to 183 bbls. an hour, after being drilled 2 feet deeper. When it was first completed it extended production in the field a half mile to the south. The potential output of the well based on the 183 bbls. an hour flow is 4,392 bbls. a day. The largest well previously completed in the pool was Independent Oil & Gas Co.'s No. 2 Miller, NW cor. NE NE, Section 3-20-6w, it made 1,200 bbls. a day and was completed in May, 1927.

Oil in Gove County

Two wildcat tests were completed in Gove County during the first six months of the year both being abandoned as failures. The first test was completed in January by the Boucher Oil Co. and Valerius' No. 1 Todd, NW cor., Section 24-13-27w, which found a hole full of water at 4,671 feet and was abandoned at a total depth of 4,813 feet. The other test was the Atlantic Oil Producing Co. and T. C. Johnson's No. 1 Wright, SE cor. NE, Section 11-12-27w, found water at 4,625 feet and after being drilled to a total depth of 4,861 feet it was plugged.

Rooks County Promising

One of the promising areas in the State was in Rooks County in the northwestern part of the State which many expect will develop into an active field when conditions return to normal. Seeley, Boyson and Aylward's No. 1 Silvers, in Section 21-8-19w, which was completed in 1930, but was shut in without any pipe line outlet after it completed a swabbing test making 350 bbls. of oil a day, was given a pipe line connection in February. The owners completed a 4-inch pipe line from the well to a loading rack at Zurich and the oil was being shipped out in tank cars to Kansas City. It was the only well completed in the area during the first half of the year. In June the daily average production of the well was approximately 140 bbls. a day.

The deepest test drilled in the State the first half of the year was completed in Clark County. Watchorn Oil & Gas Co.'s No. 2 Morrison, NW cor. NE, Section 20-32-21w, was drilled to a total depth of 6,909 feet where it found water and was abandoned.

Hugoton Gas Field

The Hugoton gas field in southwestern Kansas, is considered one of the most promising in the country and is expected to be the scene of an intensive drilling campaign later in the year. It has been estimated that 100 wells may be drilled in the area in the last half of the year. These wells, it is believed, will be necessary to maintain the volume to supply the market outlet, when the interstate pipe lines now under construction are completed.

The Hugoton gas field now has 122 completed wells with an estimated potential of 700,000,000 feet of gas a day which are now practically all shut in as the field has only a small outlet and is awaiting the completion of the major 24-inch pipe lines now under construction, which will carry the gas to Chicago, Ill., Indianapolis, Des Moines, Milwaukee, Omaha and other points.

The gas is found on a regional high, permitting the accumulation of large quantities of gas and probably oil. The field now covers parts of four Kansas Counties and one Oklahoma County, Stevens, Morton, Grant and Stanton Counties in Kansas and Texas County in Oklahoma. The proven territory is estimated to cover 1,000,000 acres. A geological survey based on the red beds, shows a dip from the west line of Stevens County to the southeast corner of Beaver County, Oklahoma, of 750 feet. The survey shows a south dip from the southwest corner of Stevens County to the southwest corner of Hansford County, Texas, of 750 feet and an east dip from the west line of Stevens County to the northwest corner of Beaver County of 500 feet. Some express the opinion that another structure is located in Baca County, Colorado.

The gas from the wells in the field has been selling for approximately 5 cents per 1,000 feet at the well. Very little gas, except that being run to lines for local consumption or used in lines supplying gas to towns in a few western counties has been taken from the wells during the life of the field.

KANSAS

Summary of Wells Completed First Six Months 1931

County—	Comp.	Prod.	Dry	Gas
Butler	12	925	5	1
Greenwood	18	380	11	0
McPherson	83	58,314	9	24
Barton	1	0	1	0
Clark	1	0	1	0
Morton	3	0	0	3
Cowley	19	1,360	9	2
Marion	6	375	1	1
Sedgwick	29	7,181	9	0
Harvey	7	1,009	5	0
Morris	8	0	3	5
Rush	1	0	0	1
Rice	11	2,880	3	1
Stevens	18	0	0	18
Sumner	3	65	1	0
Woodson	1	0	1	0
Kingman	2	216	1	0
Kiowa	1	0	1	0
Barber	2	0	1	1
Chase	1	0	1	0
Ellsworth	3	117	2	0
Gove	2	0	2	0
Pawnee	1	0	1	0
Pratt	1	0	1	0
Ellis	2	0	2	0
Reno	3	437	0	1
Rooks	2	300	1	0
Russell	7	1,680	1	0
Saline	1	0	1	0
Elk	2	235	0	0
Lyon	1	0	1	0
Geary	1	0	1	0
Coffey	1	0	1	0
Ness	1	0	1	0
Total 6 mos. 1931.	256	75,488	79	58
Total 6 mos. 1030.	514	100,380	217	47
Difference	258	24,892	138	11

Summary by Months

January	47	13,798	13	12
February	40	9,196	16	3
March	48	10,312	15	12
April	33	7,353	7	11
May	41	13,569	14	8
June	47	21,260	14	12
First half 1931	256	75,488	79	58
First half 1930	514	100,380	217	47
First half 1929	489	78,523	206	38
First half 1928	624	68,531	225	59
First half 1927	770	62,726	331	40
First half 1926	1,209	88,401	390	54
First half 1925	864	107,407	286	54

CENTRAL AND WESTERN TEXAS ACTIVITIES DULL

(Continued from Page 106)

Utey in Section 135, Block 3-T, is an extension well of the pool, lying approximately 5 miles northeast of present production. At present it is plugging back from a total depth of 3,525 feet to 3,300 feet to complete for a gas well.

Another extension of importance to the pool, was Shamrock Oil & Gas Co.'s No. 1-C Coffee in Section 361, Block 44, H.& T.C. Survey, 4 miles to the west of the main body of the pool. This extension with the extension in the other direction from the pool, proves up an area of around 10 miles in width from northeast to southwest.

Seeking Deeper Pays

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in the Wichita Falls district during the past few months, drilling in old shallow producing areas, seeking deeper pays, and one of these tests, its No. 5-A Wilson in Section 75, Block 75, A.T.&L. Survey, Archer County, which has passed up shallower pays in sand and sandy shale found at 2,218-41 feet and 2,247-49 feet, and from 2,285-2,300 feet, and is drilling ahead in an effort to pick up a larger producing pay. It was estimated good for a 1,000-bbl. well in the 2,285-2,300-foot pay.

Young County has been held down during the past six months by conflicting conditions, but several extensions have been recorded in various areas, and one or two wildcat discoveries made. One of the last discoveries was by Know and others in their No. 1 Burkett well, 4 miles northeast of Graham, in Section 3,412, Block 9, T.E.&L. Survey. Top of the pay was encountered at 2,703 feet and total depth of the test is 2,305 feet, the well estimated good for 100 bbls. per day.

The Panhandle Refining Co. opened up another pool in Young County the first week in January when its No. 1 Cox in the Indianola Railway Survey, in the eastern part of the county, came in making around 120 bbls. per day with 10,900,000 feet of gas per day from sand topped at 2,330-41 feet. It was later deepened 5 feet, and increased to 15,400,000 feet of gas and 10 bbls. more of oil per day. The Lone Star Gas Co. connected with the well, taking only 2,400,000 feet of gas per day.

New Pool in Coleman

Barney Carter opened another producing area for Coleman County in February when his No. 1 Parker in Section 23, T.&N.O. Survey, topped an oil sand at 3,593 feet and commenced flowing by heads every hour, while standing shut down at 3,605 feet. It was approximately 4 miles southeast of the nearest production in the Goldsboro Pool, and proved of considerable worth in opening up more territory in that area.

NORTH CENTRAL TEXAS
Summary of Completions in the First Six Months, 1931

County—	Comp.	Prod.	Dry	Gas
Archer	95	1,808	67	0
Baylor	5	0	5	0
Brown	26	168	19	3
Callahan	18	55	12	3
Clay	4	0	2	2
Coleman	64	4,533	32	8
Collin	2	0	2	0
Comanche	4	35	3	0
Cooke	16	464	11	0
Denton	3	0	3	0
Eastland	23	182	8	11
Erath	5	0	5	0
Foard	5	0	4	1
Grayson	4	0	4	0
Haskell	3	0	3	0
Hamilton	1	0	1	0
Hood	1	0	0	1
Hardeman	1	0	1	0
Jack	9	290	3	4
Montague	2	40	1	0
Palo Pinto	37	15	25	11
Parker	2	0	1	1
Shackelford	17	53	11	2
Stephens	14	14	8	5
Throckmorton	16	0	14	2
Wichita	44	677	26	0
Wilbarger	18	51	14	0
Young	290	15,475	188	0
Total	729	23,860	473	54

Completions by Months

	Comp.	Prod.	Dry	Gas
January	182	6,228	119	16
February	143	3,650	87	8
March	126	3,771	88	3
April	93	2,159	68	8
May	112	3,660	70	17
June	73	4,392	41	2
Total	729	23,860	473	54

TEXAS PANHANDLE
Summary of Completions in the First Six Months, 1931

County—	Comp.	Prod.	Dry	Gas
Carson	27	355	3	20
Cochran	1	0	1	0
Childress	1	0	1	0
Gray	67	20,939	12	11
Hall	1	0	1	0
Hutchinson	24	1,381	2	11
Lipscomb	1	0	1	0
Moore	15	3,857	1	9
Motley	1	0	1	0
Potter	2	0	1	1
Wheeler	6	25	2	3
Total	146	26,557	26	55

Completions by Month

	Comp.	Prod.	Dry	Gas
January	32	9,780	2	12
February	28	7,767	5	7
March	28	897	12	10
April	23	5,989	4	7
May	23	1,695	1	12
June	12	429	2	7
Total	146	26,557	26	55

DIAMOND CORE DRILLS AND SUPPLIES
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FORT WORTH, TEXAS

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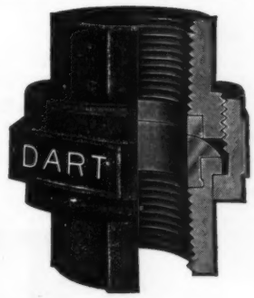

E. M. Dart Mfg. Co., Providence, R. I.
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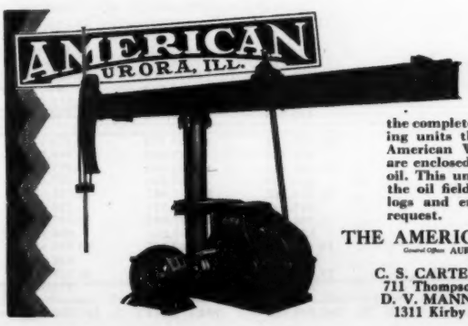

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Report for Month of May

RUNS

	Month (bbls.)	Dly. av. (bbls.)
Prairie P. L. Co.*	843,200	27,200
Gulf P. L. Co.	1,273,488	41,080
Texas P. L. Co.	747,481	24,112
Magnolia P. L. Co.	1,602,600	51,697
Empire P. L. Co.	2,252,945	72,676
Cosden P. L. Co.	660,779	21,315
Stanolind P. L. Co.	3,010,100	97,100
Oklahoma P. L. Co.	2,343,097	75,584
Other lines	7,998,000	258,000
Total May	20,731,690	668,764
Total April	19,980,617	666,020
Difference	751,073	2,744

SHIPMENTS

Prairie P. L. Co.†	2,400,591	77,438
Gulf P. L. Co.	1,361,964	43,934
Texas P. L. Co.	1,335,197	43,071
Magnolia P. L. Co.	1,502,701	48,474
Empire P. L. Co.	2,356,367	76,013
Cosden P. L. Co.	649,137	20,940
Stanolind P. L. Co.†	3,812,442	122,982
Oklahoma P. L. Co.	2,197,196	70,877
Other lines*	7,564,000	244,000
Total May	23,179,595	747,728
Total April	23,028,313	767,610
Difference	151,288	19,882

STOCKS

Prairie O. & G. Co.*	37,560,000
Gulf P. L.-Gypsy Oil Co.	8,943,656
The Texas Company	3,336,837
Magnolia Petroleum Co.	6,302,552
Empire P. L. Co.	5,331,726
Mid-Continent Petroleum Corp.	3,706,274
Stanolind Crude Oil Pur. Co.*	13,450,000
Oklahoma P. L. Co.	3,731,651
Carter Oil Co.	5,513,513
Other lines*	20,904,000
Total May	114,870,509
Total April	115,563,208
Difference	692,699

*Estimated. †Prairie and Stanolind shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR MONTH OF JUNE

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for May and June:

	May, 1931	June, 1931
Nat. Transit	143,585.75	142,665.44
S. W. Pa. P. L.	74,718.32	74,374.26
Eureka P. L.	295,679.32	303,225.17
Buckeye P. L. (Macksburg)	292,687.45	293,480.77
Buckeye P. L. (Cleveland)	13,408.90	11,410.57
Buckeye P. L. (Lima, etc.)	80,369.42	87,182.23
Indiana P. L.	3,425.44	3,000.67
Cumberland P. L.	158,976.48	156,303.08
N. Y. Transit	28,296.26	28,964.10
Tide Water P. L.	24,946.95	25,859.99
Pure Oil	188,974.65	173,774.98
Stoll Oil Ref.	26,609.87	.....
Bradford Transit	324,013.67	323,059.46
Total	1,653,692.08	1,623,300.72
Daily average	53,344.91	54,110.02

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for May and June:

	May, 1931	June, 1931
Nat. Transit	494,823.01	462,276.53
S. W. Pa. P. L.	442,582.39	446,843.15
Eureka P. L.	328,121.10	400,401.52
Buckeye P. L. (Macksburg)	231,067.12	266,663.53
Buckeye P. L. (Cleveland)	1,709.67	1,709.71
Buckeye P. L. (Lima, etc.)	1,588,533.48	1,950,031.09
Indiana P. L.	1,121,163.38	998,821.71
Cumberland P. L.	109,505.58	103,631.73
Southern P. L.	88,868.78	11,865.96
N. Y. Transit	191,931.04	169,549.34
Northern P. L.	177,918.97	144,262.80
Tide Water P. L.	454,064.43	472,572.62
Pure Oil	256,536.46	290,068.38
Bradford Transit	304,084.82	319,547.18
Tuscarora	385,769.63	607,326.63
Total	6,176,679.86	6,634,671.91
Daily average	199,247.74	221,155.73

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of May and June:

	May, 1931	June, 1931
Nat. Transit	753,134.11	698,669.24
S. W. Pa. P. L.	512,838.77	410,763.21
Eureka P. L.	1,517,026.88	1,539,688.05
Buckeye P. L. (Macksburg)	370,904.34	373,326.66
Buckeye P. L. (Cleveland)	58,962.66	86,846.76
Buckeye P. L. (Lima, etc.)	3,641,367.87	3,162,645.51
Indiana P. L.	518,335.78	508,947.64
Cumberland P. L.	644,027.51	639,041.14
Southern P. L.	217,548.51	248,232.04
N. Y. Transit	126,136.54	166,753.77
Northern P. L.	339,978.15	282,847.01
Tide Water P. L.	863,211.61	836,307.12
Pure Oil	541,284.20	426,437.22
Tuscarora	13,462.07	12,683.45
Bradford Transit	210,020.88	238,670.71
Total	10,728,239.98	9,903,349.53
Decrease	316,247.61	824,890.45

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of May and June, showing gross stocks of above fields:

	May, 1931	June, 1931
Pennsylvania	3,895,594.08	3,682,748.26
Lima	792,443.56	763,086.16
Kentucky	654,328.32	649,341.95
Mid-Continent	4,854,341.47	4,391,327.49
Michigan	531,532.55	416,845.67
Total	10,728,239.98	9,903,349.53

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
Jan.	52,904	51,749	75,907	53,939
Feb.	57,002	51,833	79,266	55,162
Mar.	57,485	54,252	76,688	54,331
Apr.	56,812	58,444	84,536	54,914
May	62,067	59,902	70,546	53,344
June	58,230	58,833	75,430	54,110
July	57,144	66,087	68,921	.....
Aug.	57,745	66,087	54,291	.....
Sept.	53,487	67,815	56,595	.....
Oct.	58,100	76,093	58,179	.....
Nov.	53,865	74,831	52,332	.....
Dec.	52,025	74,561	53,999	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
Jan.	146,465	165,721	217,623	175,369
Feb.	167,368	159,387	224,355	183,494
Mar.	158,883	161,474	228,846	189,508
Apr.	172,935	169,737	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	221,155
July	189,470	194,763	207,094	.....
Aug.	192,853	194,946	205,506	.....
Sept.	194,138	201,214	193,999	.....
Oct.	176,000	191,367	157,675	.....
Nov.	176,898	202,743	146,638	.....
Dec.	173,572	186,257	143,001	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
Jan.	7,596,564	12,220,045	11,831,092
Feb.	8,738,835	12,991,561	11,506,489
Mar.	9,062,058	13,247,217	11,013,162
Apri.	8,978,172	13,233,961	11,044,487
May	8,903,560	13,052,952	10,728,239
June	8,921,575	13,396,855	9,903,349
July	9,211,595	13,269,562	.....
Aug.	9,440,643	13,047,051	.....
Sept.	9,443,067	12,812,018	.....
Oct.	9,441,101	12,437,555	.....
Nov.	9,868,538	11,851,380	.....
Dec.	11,253,953	11,751,952	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, July 1	606,780.26
Runs from wells	484,945.79
Regular deliveries	294,398.14
Other deliveries	234,888.00

The amount of Illinois oil run by the Tide Water Pipe Co. in June was 25,859.99 bbls. Deliveries were 25,859.99 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the rune and deliveries as follows:

1931—	Runs	Deliveries
June	510,805.78	320,258.13
1930—		
January	543,387.95	498,293.93
February	548,416.33	414,536.59
March	631,944.49	469,119.52
April	530,074.22	509,304.60
May	606,147.37	504,069.84
June	572,662.57	468,658.81
July	604,529.54	388,454.47
August	594,642.12	376,742.43
September	457,001.11	371,691.62
October	478,442.12	326,688.73
November	422,794.68	355,403.12
December	556,418.78	363,719.55
1931—		
January	468,429.04	669,573.19
February	429,284.54	461,262.85
March	424,638.23	356,663.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95

Tide Water Pipe Co., Ltd., also delivered in June 172,608.35 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleas, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
July	17,355	7,774	43,419	23,839	6,452	98,839	.....	.....	.....	.....	4,645	103,484
August	7,418	8,742	38,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,432	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	3,367	6,233	33,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	3,387	6,618	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,338	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	3,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleas, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
July	42,097	9,548	154,968	37,935	36,032	280,500	5,678	9,161	2,097	2,387	19,322	299,903
August	39,032	4,484	145,613	33,355	25,097	247,581	8,419	9,323	8,548	3,000	29,290	276,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,432	12,234	.....	3,800	22,467	280,867
October	19,839	11,742	146,194	35,355	26,967	240,097	6,065	7,067	2,774	2,545	18,451	258,548
November	39,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	123,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129
January	17,613	13,519	154,225	33,902	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	21,129	235,161	4,065	2,580	.....	1,968	8,613	246,774
April	35,000	10,533	105,000	29,767	35,533	215,833	2,733	3,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	25,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,067	10,833	111,767	27,000	20,833	200,500	3,300	5,500	2,167	1,333	12,300	212,800

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
July:	Month	18,802,024	18,032,514	25,973,521	3,541,409	1,713,680	2,079,769	3,275,894	3,830,000	77,248,811
	Daily average	606,517	581,694	857,856	114,239	55,280	67,089	105,674	123,548	2,491,897
August:	Month	18,770,466	17,162,034	26,069,598	3,491,530	1,700,102	2,161,120	3,193,341	3,417,000	74,955,191
	Daily average	605,499	553,614	308,696	112,630	54,842	69,391	103,011	110,226	2,417,909
September:	Month	17,984,306	16,509,120	23,111,822	3,405,510	1,583,280	2,008,060	3,229,010	3,396,000	71,237,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,344,053	16,632,523	23,636,553	3,471,913	1,636,552	2,142,885	3,235,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,109,459	14,941,770	22,086,222	3,459,330	1,567,870	2,136,948	2,967,100	3,222,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,057,103	21,810,359	3,432,661	1,590,951	2,157,534	3,118,663	3,328,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	107,355	2,202,645
1931—										
January:	Month	16,485,738	14,850,953	20,019,212	3,432,475	1,574,955	2,135,037	2,966,142	3,374,000	64,838,512
	Daily average	531,798	479,063	645,781	110,725	50,805	68,872	95,682	108,839	2,091,565
February:	Month	14,930,932	13,531,980	18,957,571	3,341,016	1,402,492	1,981,616	2,747,024	3,129,000	60,021,631
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,143,629
March:	Month	16,364,542	16,627,637	22,453,619	3,498,598	1,469,245	2,061,576	2,898,035	3,374,000	68,747,602
	Daily average	527,898	536,377	724,310	112,858	47,395	66,502	93,485	108,839	2,217,665
April:	Month	15,803,541	16,815,990	26,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,273,000	72,384,239
	Daily average	526,785	559,255	896,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,448,960	17,333,867	28,708,684	3,341,366	1,446,274	2,232,568	3,098,419	3,190,000	75,800,138
	Daily average	530,612	559,157	926,086	107,786	46,654	72,018	99,949	102,900	2,445,166
June:	Month	15,641,436	16,678,200	29,139,833	3,175,440	1,344,450	1,850,511	2,986,200	3,166,000	73,982,070
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,069
Total 12 months		205,372,485	194,173,741	287,793,711	40,972,128	18,432,071	24,945,645	36,607,243	40,326,000	848,624,029

FIG. 709 SADDLE Gate Valve

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VALVES FITTINGS AND TOOLS

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Tube-Turns are the ONLY fittings that combine full strength, lowest resistance to flow and easiest installation.

That's true because Tube-Turns are the ONLY fittings that combine seamless construction with uniform walls—no thinning, no thickening, no buckling—radius of 1½ times the nominal pipe diameter—manufactured from the same material as the pipe in the line.

Tube-Turns are the ONLY fittings for pipe welding that are neither bends, stampings nor castings. They are the ONLY fittings that are available from stock in all the sizes and types required for modern piping.

Tube-Turns are made in 45°, 90° and 180° types. Ends beveled 45° for welding.

Available from stock in sizes ¾" to 20" Standard I. P. S. and 1¼" to 12" Extra-Heavy I. P. S.

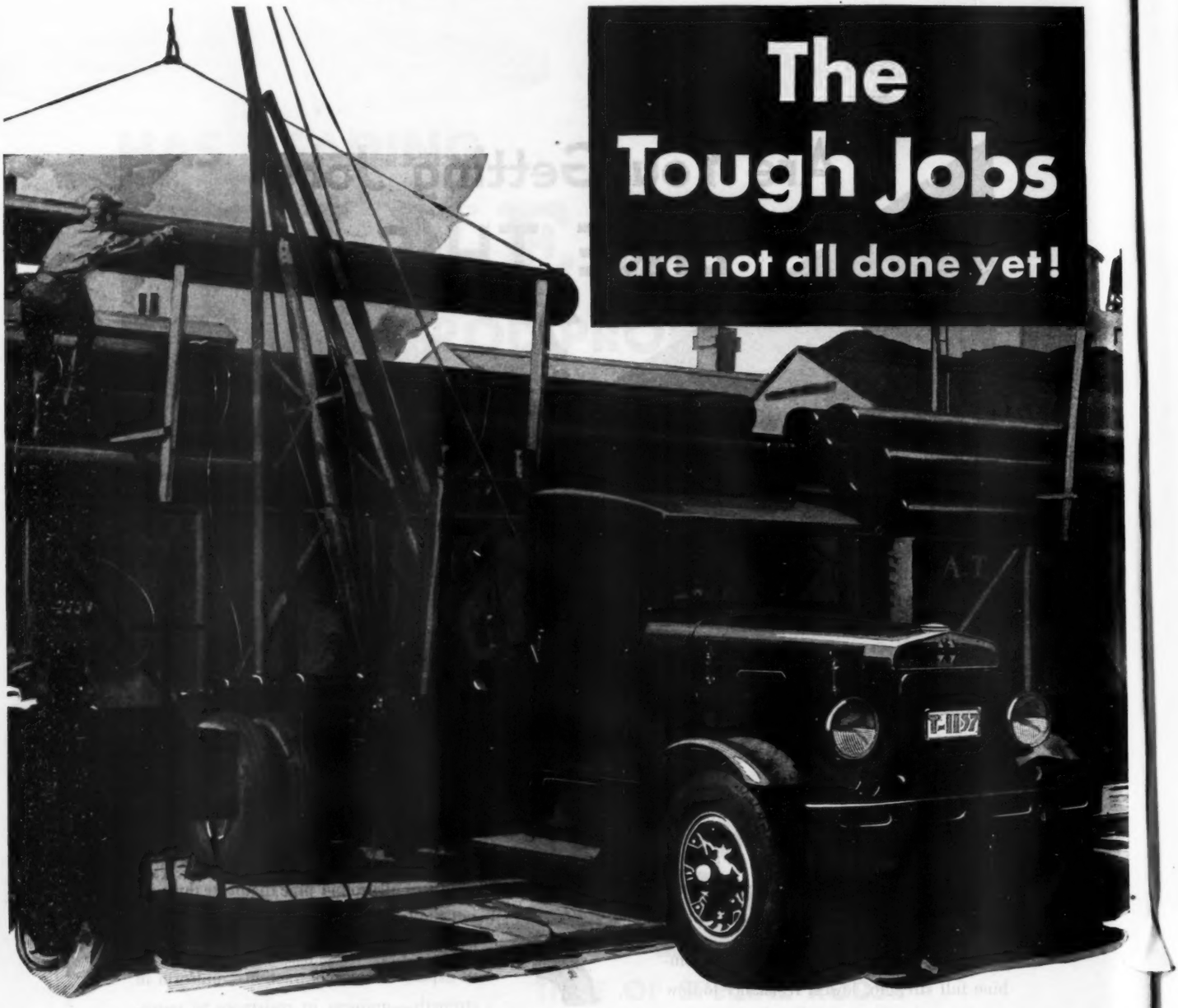
Seamless. Uniform in wall thickness—no thinning of outside walls, no thickening of inside walls, no buckling, no flattening. Stronger. Lighter. Easier to install and insulate. They NEVER leak.

Seamless. Uniform in wall-thickness at all points. Full, round pipe diameter throughout the turn. Made from the same material as the pipe in the line. Therefore uniform in expansion and contraction—uniform in strength—uniform in resistance to corrosion and wear.

If you haven't yet gotten the complete facts about Tube-Turns and all their advantages over *any* other kind of fitting, WRITE TODAY for Bulletin 103. No obligation, of course. *Address:* TUBE-TURNS, *Incorporated,* 1311 South Shelby Street, Louisville, Ky.

TUBE-TURNS

The* Original *Fittings for Pipe Welding



THE Pioneer Spirit is far from dead, and the tough jobs are not all finished. Every Pipe-Liner knows that. It's a man's job to lay the pipe lines that carry some of the country's great natural resources. A Pipe-Liner must dynamite the hills. . . . cross under and over great rivers . . . . plow through forests and swamps. No easy roads for him; in fact, no roads at all.

There are two things a Pipe-Liner on the job likes best in the world; dry weather, and International Trucks.

For Internationals play a heavy role in this great work. They take on loads of 24-inch pipe in 40 to 80-foot sections weighing up to 7,200 pounds . . . . and string it along the roughest right-of-way.

They haul the materials, too . . . . the couplings and the skids and the hot paint. They transport the fence-busters and the muckers and the other crews and gangs of workmen. They do all this in the fair weather a Pipe-Liner likes . . . . or in the rainy weather he hates.

Drillers and Trucking Contractors from coast to coast prefer Internationals. They are working on all of the important lines in the country. And *wherever* these Internationals go, *Service* is always in the field before them! International Harvester maintains 183 Company-owned branches in the United States and Canada, and there are dealers everywhere.

You need Internationals . . . . and International Service. Both will serve you faithfully and economically. Sizes range from ¾-ton to 5-ton, and any branch or dealer will demonstrate any model for you . . . . on your own job.

Ask the nearest branch or dealer about the new 1½-ton 4-speed International

$675

and the new 1½-ton Six-Speed Special

$725

Prices: Chassis, f. o. b. factory

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. OF AMERICA (Incorporated) Chicago, Illinois

INTERNATIONAL TRUCKS

DARLING

FORGED STEEL GATE VALVES

All Set for the Unexpected!

Don't be caught napping when the unexpected wildcat has its fling. The highest pressures are safely controlled by Darling Forged Steel Valves. *Doubly* strong and *positive* in action these valves offer formidable resistance to the heaviest onslaughts of gas and oil.

The Darling Forged Steel Gate Valve can be furnished in Inside Screw, Stationary Stem Type, in Screwed Ends, Flanged Ends and Flanged Ends with Companion Flanges bolted on.

Detailed information on request.

DARLING VALVE & MANUFACTURING CO.

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Mid-Continent Distributors:
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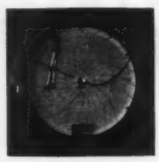
Instrument Equipment...

For CONTROLLING Operating Conditions

Round Form Indicating Pressure Gauge arranged for flush mounting.



Round Form Recording Pressure Gauge arranged for flush mounting.

One Mid Western company uses more

Original Form Recording Pressure Gauge; uses 12 and 8-inch charts. Aluminum-allow case; black finish.

Model 11-M Recording Pressure Gauge; black finish; aluminum-alloy case, of dust-, fume- and moisture-proof construction.

than 1700 Bristol's Recording Gauges

Round Form Recording Pressure Gauge; uses 10 and 8-inch charts. Case is of dust-, fume- and moisture-proof construction.

Industrial (Mercurial Type) Stem Thermometers. Features include: Solid, one-piece case construction, finest mercury column, and easy-to-read scale.

to check line pressures . . . another has in opera-

Industrial Stem Thermometer showing right-angle fitting. Fittings available to care for practically any requirement; for permanent installation or portable use.

Recording Thermometer shown complete with connecting tubing and sensitive bulb. Can be furnished with dust-, fume- and moisture-proof case.

tion 200 Recording Thermometers to check

Indicating Pyrometer, Model 420. Used up to 3000°F. Has extra wide scale . . . very easy to read.

New Multiple Rotary Selective Switch used with Bristol's Pyrometer equipment. Standard Switch has 12 contact points. Can also be arranged for 4, 6, 8 and 10.

gas temperatures in lines supplying industrial consumers.

To assist in the development of instrument possibilities; planning of installation details, etc., Bristol's Field Engineering Service is available—entirely without obligation. For more detailed information, or request for consultation, write or wire:

THE BRISTOL COMPANY, WATERBURY, CONNECTICUT

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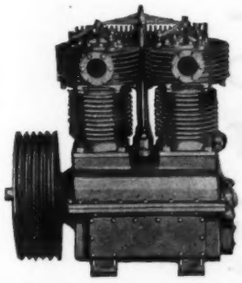
One compressed air hoist does the work of many men in handling and "spotting" heavy pipe, and saves damage to the pipe coating.

You can Save Money *with* Compressed Air *on many kinds of pipe line work*



Give your men the help of compressed air, and see how much faster they will—

Clear rocks, trees and stumps from the right-of-way
Clean pipe and grind down the welds
Apply heavy coatings with an air motor to rotate the pipe
Handle and "spot" heavy pipe with air hoists and slings

On some of these operations, compressed air has enabled the same number of men to turn out three to four times more work than before. On each of them, and on many others, such as pipe bending, testing lines, etc., your men will save you money—

If and when you give them air compressors that are really practical for use on pipe line work.

The Davey "Air-Cooled" Compressor unit for mounting on "Caterpillar" or other tractors is "built-to-order" for the pipe line contractor. It rides on the tractor as a part of the tractor. It can travel through soft spots and over rough ground to speed up the work in places along the line where your men could never think of taking a heavy water-cooled trailer-mounted compressor. It provides at low cost all the practical advantages of a crawler-mounted self-propelled air compressor (if such a machine could be had) and eliminates the extra investment, operating expense and inconvenience of a separate trailer rig for your men to drag around.

We shall be glad to send you photos and further information concerning the use of Davey Air Compressors in pipe line construction and maintenance, and to tell you where you may inspect a tractor-mounted Davey Compressor near you. Mail the coupon below.

DAVEY COMPRESSOR COMPANY, INC. Kent, Ohio

Sales Representatives in all Principal Cities

The method of cooling air compressors through the use of metals of high heat conducting quality and capacity, as contained in Davey Compressors, is fully protected by patent

No other method can equal the speed of compressed air for breaking rock and pavement, cutting out stumps, drilling blasting holes, etc.

One contractor reports that cleaning pipe with rotary air brushes instead of by hand saves $40 to $50 every working day.

Air-driven cup grinders for smoothing down welds work faster and leave smoother surfaces than do chisels and files.

One air motor for rotating pipe while coating is applied doubles the output of the coating crew.

DAVEY AIR COOLED AIR Compressors

DAVEY COMPRESSOR COMPANY, Inc., Kent, Ohio

Send us photos of tractor-mounted Davey Compressors on pipe line work, and tell us where we can inspect the Davey Compressor.

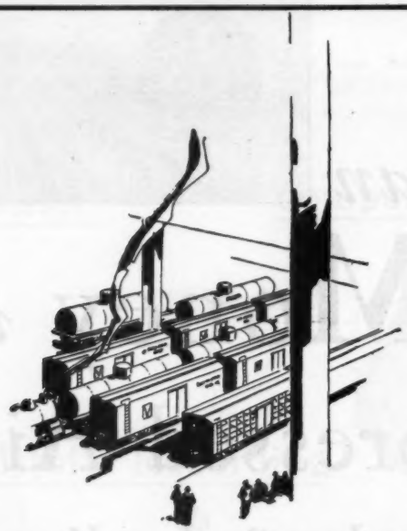
Name_____

Company_____

Address_____

City and State_____

O&GJ 7-30-31



ANY TYPE OF CAR... WHEN AND WHERE YOU WANT IT

The General American Tank Car Corporation operates the largest privately owned fleet of railroad cars in the world.

At ten strategic points throughout the country, the Company maintains repair plants, which also serve as terminals for this vast fleet of 50,000 cars.

This enables you to get all the cars you want . . . of the particular kind you want . . . when and where you want them.

Each of these General American plants carries a complete stock of tank car parts, enabling you to have repairs quickly made. Coupled with this service, the General American operates an export terminal at New Orleans for the storage, handling and packaging of bulk liquids.

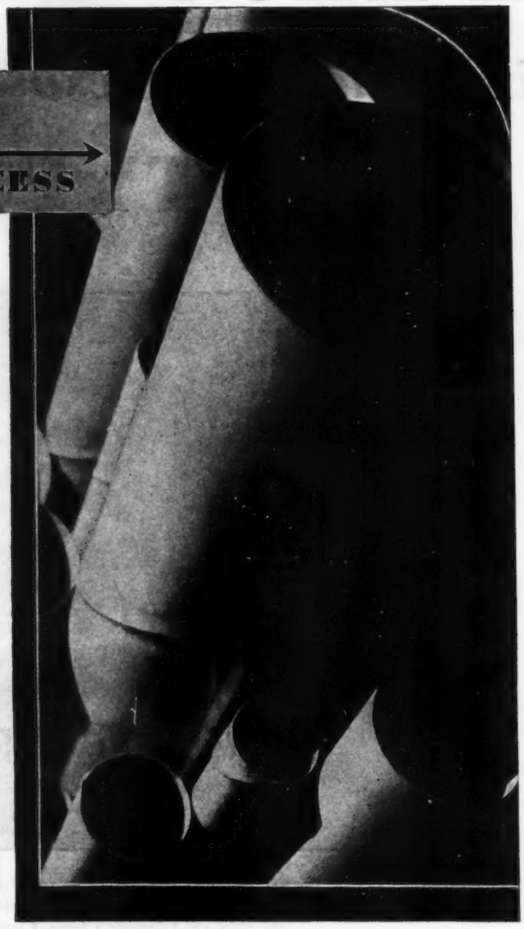
You may safely trust your transportation problems to General American with the confidence that comes from dealing with an organization upon which the oil industry has relied for more than thirty years.

Ten General American repair plants are maintained in addition to offices in New York, Los Angeles, Milwaukee, New Orleans, Buffalo, Dallas, Tulsa, St. Louis, Seattle, Spokane and Sharon. Head office, Chicago.

GENERAL AMERICAN
TANK CAR CORPORATION

"Pioneers in Continuous Sheet Rolling"

MADE BY CONTINUOUS PROCESS



Light-Weight PIPE that does *full duty*

TO the shipping clerk, trucker and field worker, Armco Spiral Welded Pipe is light in weight. But when it comes to performance, it can be depended on for full duty. This improved pipe does its job efficiently because it is fabricated precisely from true-gage coiled plate and *tested to twice the* specified working pressure.

Absence of surplus metal brings lower handling costs all along the line, while perfect circle roundness insures ends that match and couplings that fit. And the smooth inner wall facilitates free flow and full discharge.

Order Armco Spiral Welded Pipe for your next line, and watch installation costs fall and efficiency rise. Any of the offices listed below will give you complete information about this light, strong pipe. Write for a copy of our 40-page illustrated handbook.

The American Rolling Mill Co.

Executive Offices: MIDDLETOWN, OHIO
Export: The Armco International Corporation

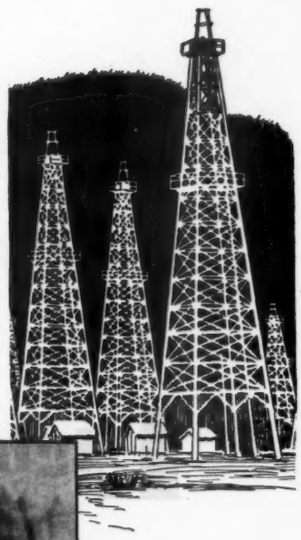
DISTRICT OFFICES: Chicago · Cincinnati · Cleveland · Detroit
New York · Philadelphia · Pittsburgh · St. Louis · San Francisco

Quick Facts: Smooth interior · Round and straight · Light and strong
No surplus metal · Sound helical welds · Uniform wall thickness · 40 ft. lengths or more
Diameters 6″ to 24″ · Wall thickness $\frac{1}{11}$″ to ¼″ · Ingot Iron or Steel
Mill-coated, asphalt-dipped, galvanized or leadized

FIRST

in the new East Texas Oil Fields . . .

G-E TYPE MTO



The first motor in Joiner Field — a G-E Type MTO, two-speed, wound-rotor, oil-well motor rated 55/25 hp., connected to Lufkin speed-reduction unit on the Pilot Oil Company's lease. View shows motor partially installed

FIRST in a great oil area that is gushing forth to the tune of eighty to ninety wells per week — THE GENERAL ELECTRIC TYPE MTO OIL-WELL MOTOR! That's acceptance of a proved, dependable product.

The Type MTO motor matches all power needs of a producing well — pumping, pulling, cleaning, bailing, swabbing, shaking up, and even deepening. No matter what type of rig goes into action in Joiner Field — whether the old standard or more recent designs — Type MTO will meet its requirements. It's the most flexible drive you can use at a producing well; its worth has been proved by more than 19 years of service.

Accepted for Joiner Field — accepted in scores of other important oil developments — Type MTO merits your consideration.

Type MTO motors with unit control are available through G-E warehouses located near your operations. They are available in ratings of 35/15, 50/20, 55/25, and 75/35-hp., for either 50- or 60-cycle supply, and suitable for either direct or belt drive. All sizes have the same general characteristics. Your nearest G-E office will be glad to provide complete information.

200-510A

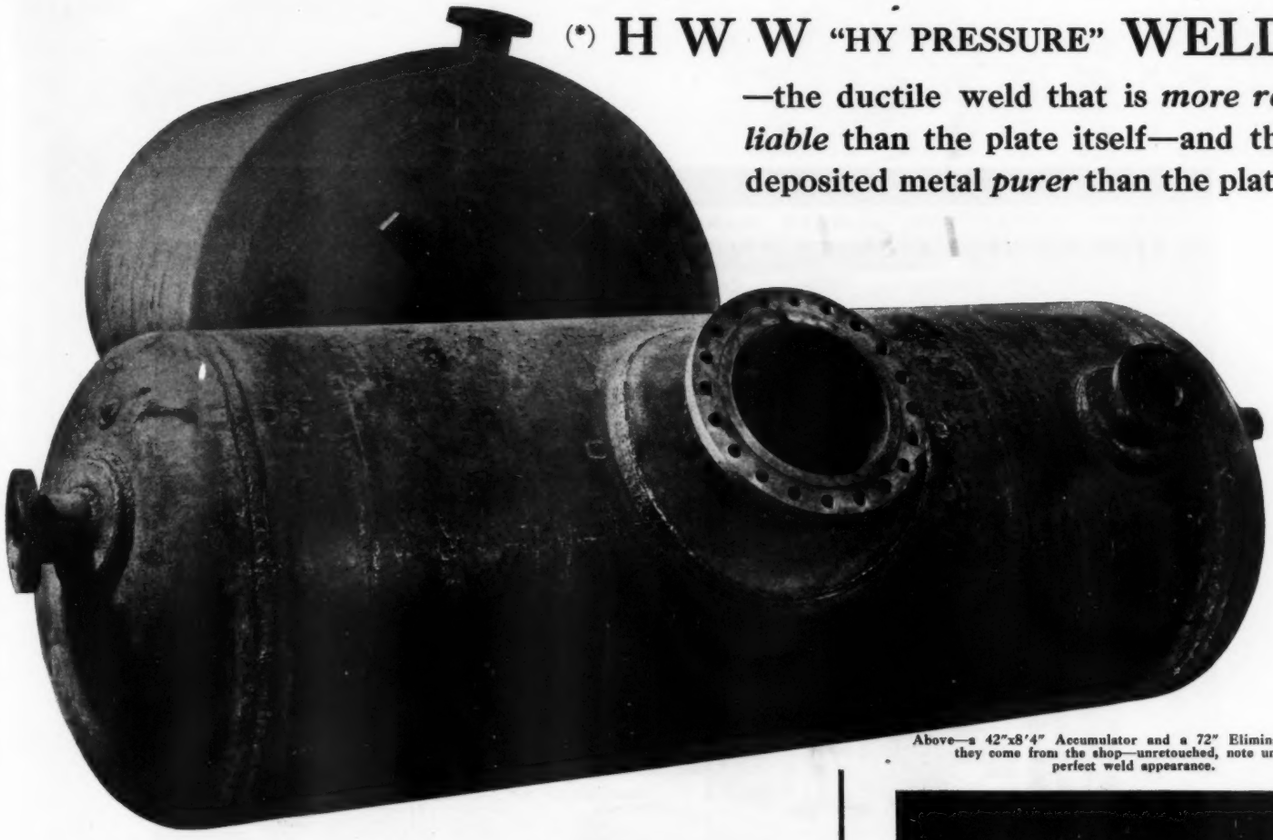
JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N. B. C. NETWORK

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

(*) H W W "HY PRESSURE" WELD

—the ductile weld that is *more reliable* than the plate itself—and the deposited metal *purer* than the plate.



Above—a 42"x8'4" Accumulator and a 72" Eliminator just as they come from the shop—unretouched, note uniform perfect weld appearance.

—for better, stronger jobs— let "H W W" build your next pressure vessels

Today's, as well as the future, trend of processing demands better and stronger pressure vessels—*especially welded* (*).

The illustrations show a part of a recent job just completed for the Jackson Engineering Corporation for installation at the Continental Construction Company plant, Fritch, Texas. These are typical of the class of work daily going through the "H W W" works. "H W W" finished products are noted for *extremely close tolerances as to roundness and longitudinal alignment* —they are made from plates of *special specifications*—formed on the *largest plate bending press in the country*—and are rigidly tested.

Within the vast "H W W" modernly equipped plant skilled workmen will fabricate and finish your pressure vessels, towers, tanks, etc., to the highest degree of perfection—*guaranteed satisfaction.*

No little part does the H W W "HY PRESSURE" WELD (*) play in this building—this advanced welding method *imparts a new and stronger strength to welds—a more perfect fusion—a union that has a higher resistant to corrosion than the plate.*

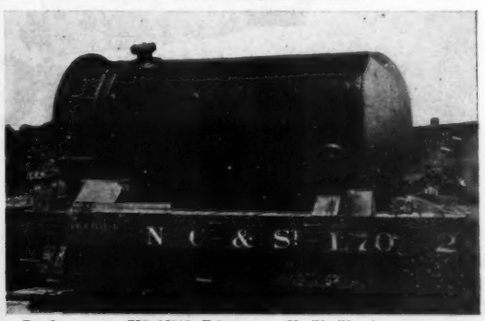
"HY PRESSURE" welding, *an exclusive "H W W" process,* produces a weld with no marked junction nor does it affect the grain structure of the original metal—*a ductile weld more reliable than the plate itself.*

Maximum pull, bends and impacts tests have failed to weaken H W W "HY PRESSURE" WELDS.

Your next job—let "H W W" build it. Pressure vessels, towers, stills, etc., any size, capacity or shape, any plate up to 3", riveted or welded.

Shop view, showing construction of a 60"x48'6" Fractionator. No job too small or too large for "H W W" Plant.

Two carloads ready for shipment—42" Fractionator, 60" Accumulator, 42" Accumulator, 72" Eliminator.



Ready to go—72"x13'4" Eliminator, H W W "Hy Pressure" Welded.

THE HEDGES-WALSH-WEIDNER COMPANY

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Jenkins VALVES ARE ALWAYS MARKED WITH THE "DIAMOND" TRADE JENKINS MARK

JENKINS
IRON BODY
DOUBLE DISC
PARALLEL SEAT
GATE VALVES

1: Sectional view, Fig. 326, Jenkins Standard Iron Body Solid Wedge Gate Valve, Flanged. Inside screw, stationary spindle. 2: Sectional view, Fig. 879, Jenkins Extra Heavy Iron Body Double Disc Parallel Seat Gate Valve, Flanged. Outside screw and yoke, rising spindle.

Made to the same standards as Jenkins solid wedge gates

JENKINS Iron Body Solid Wedge Gate Valves need no introduction. These trustworthy valves you know. If you are using these Jenkins as so many others do, you can testify that a Jenkins Solid Wedge Gate insures good valve service.

Jenkins Iron Body Double Disc Parallel Seat Gate Valves also merit your endorsement. Made to the same exacting standards of Jenkins excellence, they can be used with confidence in water, oil and gas service wherever a reliable valve is needed.

If you wish, we will send you helpful literature. Write for Form 143.

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See the complete Jenkins BOOK OF VALVES Catalogue No. 22A on pages 819 to 866, 1931 edition of Sweet's Engineering Catalogues

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With the PRESCOTT TURBINE DRIVEN SLUSH PUMP

(Patents Pending)

The Simplest of Steam Drives plus Proven Economies that Revolutionize Rotary Drilling.

Faster
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and at less cost per foot

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AN ENTIRELY NEW and BETTER METHOD

Cuts steam, water and gas consumption in half.
Cuts required boiler capacity in two.
Reduces boiler maintenance a third.
Entirely eliminates compounding the pumps.
Automatically builds up maximum pressure and holds it indefinitely.
Stands 100% overload before stalling.....

THE PRESCOTT COMPANY

MENOMINEE, MICHIGAN. = U. S. A.

This illustration shown through the courtesy the Daily News Photo Service of the Chicago Daily News

Natural Gas from Texas to Chicago

Workmen near Lemont, Illinois, are shown rushing to finish the last section of a pipe line 960 miles long between Chicago and the fields of Amarillo. This section of the line was treated with the NO-OX-ID Master Coat for the Will-Cook Construction Company.

The NO-OX-ID Master Coat consists of:

1. Dearborn Pipe Mill Coat. The object of this coat is to give protection to pipe in transit by placing a rust inhibitor on the steel before rusting starts.
2. NO-OX-ID "G" Special, the rust preventive unequalled which combines chemical rust inhibition and mechanical soft non-drying protection.
3. NO-OX-ID-IZED Wrapper, contains rust inhibiting NO-OX-ID and is supplied in a form complying with the requirements of the job. Applied spirally.
4. NO-OX-ID Service Coat, applied warm at a flowing consistency, gives a film effective in resisting soil stress which does not become hard and brittle on aging.

If you are not entirely familiar with the NO-OX-ID Master Coat, let us submit facts and estimates on both new and reconditioning work.

Dearborn Chemical Company

"A House of Chemical Engineers" In Its Forty-fourth Year of Service to Industry

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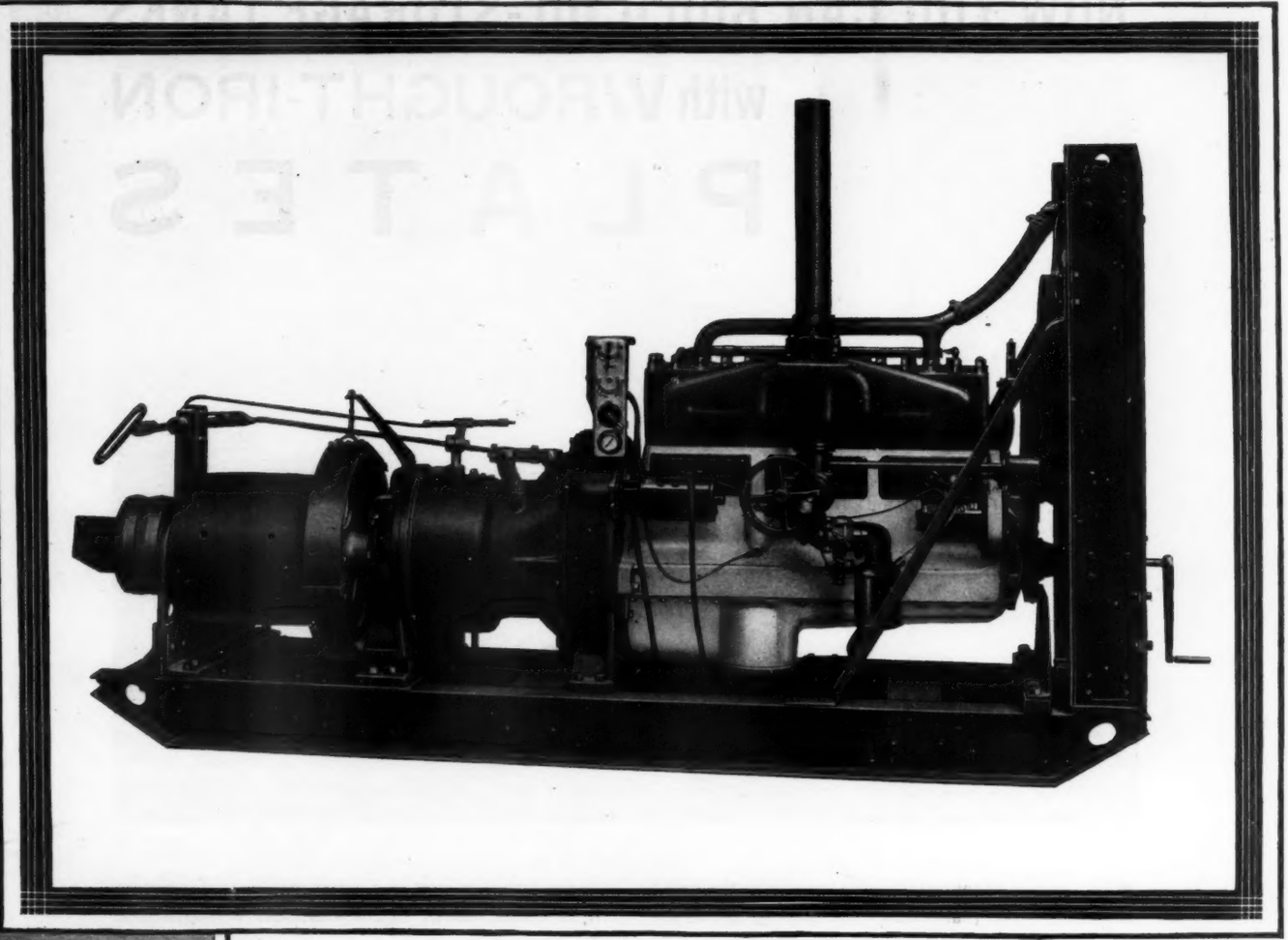
The NO-OX-ID

MASTER COAT



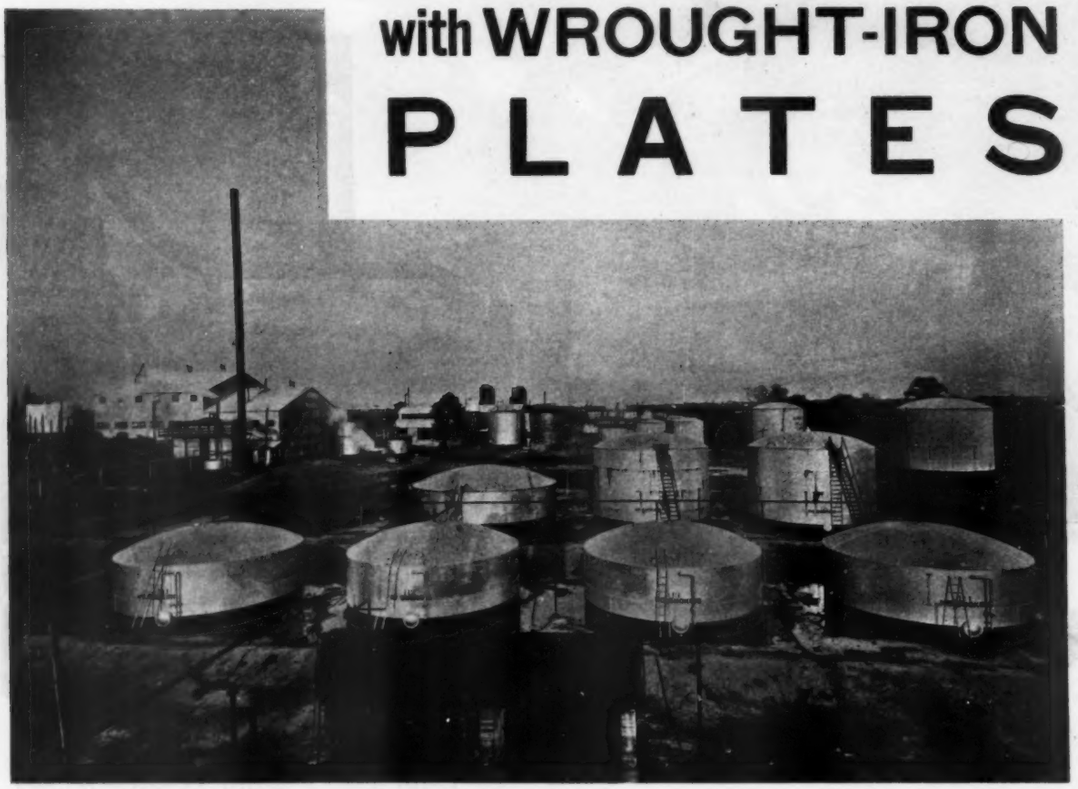
SMOOTH AS VELVET... THEY PULL LIKE STEAM

BULLETIN 788 describes a new six-cylinder drilling unit. Send for it today. ***Waukesha Motor Company, Waukesha, Wis. In the Oil Fields: C. F. Camp Co., Tulsa; Portable Rig Co., Houston; Bradford Supply Co., Bradford, Pa.; Waukesha Industrial Engine Sales & Service Co., San Francisco and Los Angeles.***

WAUKESHA ENGINES

342

NOW YOU CAN BUILD OIL-STORAGE TANKS with WROUGHT-IRON PLATES



● In a period of manufacturing transition, the value of wrought-iron plates was momentarily lost in the shuffle of mass production of cheaper materials. Modern manufacturing methods now make it possible for us to make available Byers Genuine Wrought-Iron Plates, thus answering a demand on the part of experienced engineers. In retarding corrosion and keeping down maintenance-costs on oil-storage tanks, wrought-iron plates are unequaled and have the enthusiastic approval of leading authorities on corrosion. Because of the accurate control of physical and chemical characteristics that modern manufacturing permits, Byers Genuine Wrought Iron is the best wrought iron ever produced. It is superior in every way to the wrought iron of a generation ago. Complete information about Byers Genuine Wrought-Iron Plates will be furnished upon request. A. M. Byers Company, Pittsburgh, Pa. Established 1864.

THESE ARE THE BYERS GENUINE WROUGHT-IRON PRODUCTS

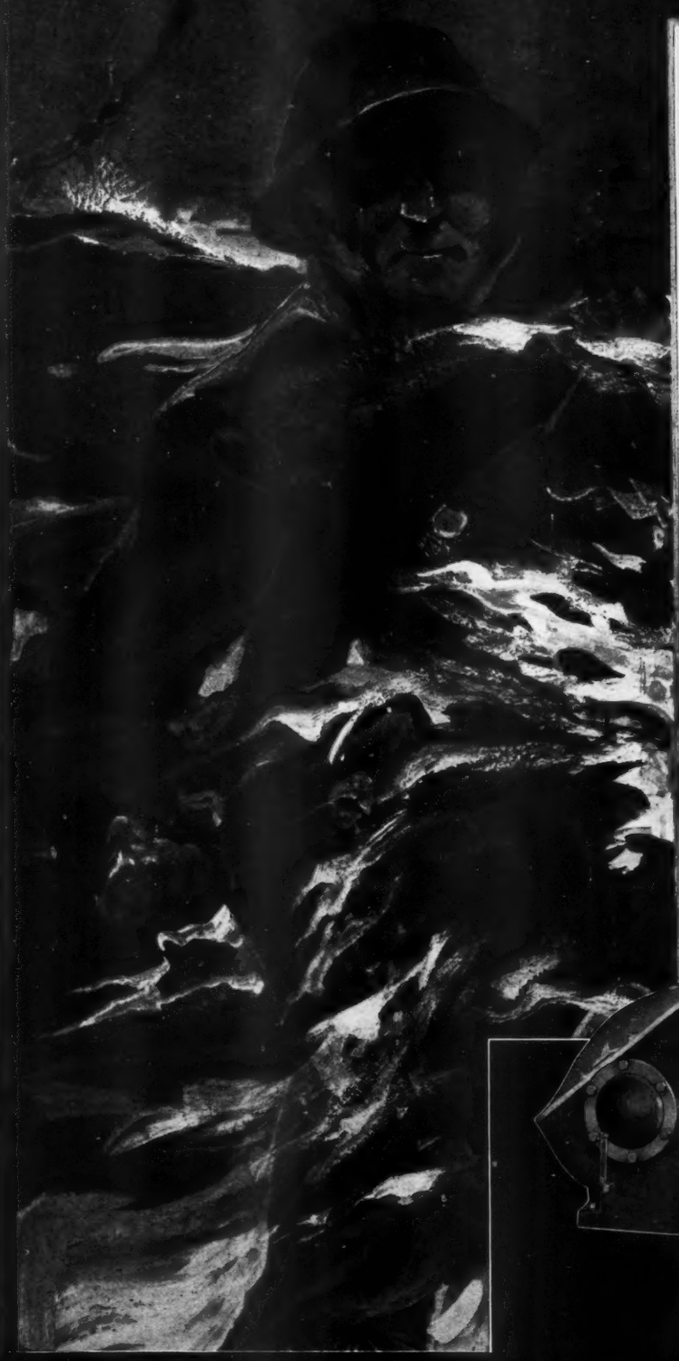
PIPE NIPPLES PLATE
TUBING COUPLINGS BAR-IRON
CASING WELDELLS* BLOOMS
SPECIAL BENDING PIPE

**Made from Byers Genuine Wrought Iron by the Locomotive Terminal Improvement Company of Chicago.*

BYERS GENUINE WROUGHT-IRON PRODUCTS

AN INVESTMENT—NOT AN OUTLAY

Experienced Supervision



Only the pilot who knows every foot of the channel can safely guide a boat in troubled waters. Equally intimate familiarity with the experiences and vicissitudes of pumps in the oil industry is necessary on the part of those who supervise the designing and building of oil industry pumps.

Gaso engineers know what oil industry pumps must *be* because they know what these pumps must *do*. The experienced supervision of Gaso engineers is the big secret of the success of Gaso Pumps—built to serve long and well under any conditions and requirements found in the Industry.

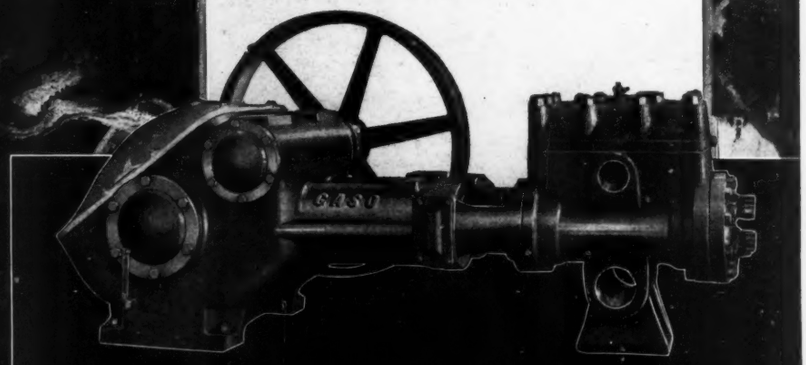
Send your requirements for detailed data on Gaso Pumps for any purpose

GASO PUMP & BURNER MFG. COMPANY

Tulsa, Oklahoma

Export Office: New York, N. Y.

Fig. 1508 GASO Timken Bearing Enclosed Power Pump can be arranged for any type of drive desired. Interchangeable liners give capacities varying from 63 bbls. per hour at 800 lbs. working pressure to 250 bbls. per hour at 250 lbs. pressure



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for every oil industry need

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Many Hughes Joints
sold 5 Years ago -
are still in active
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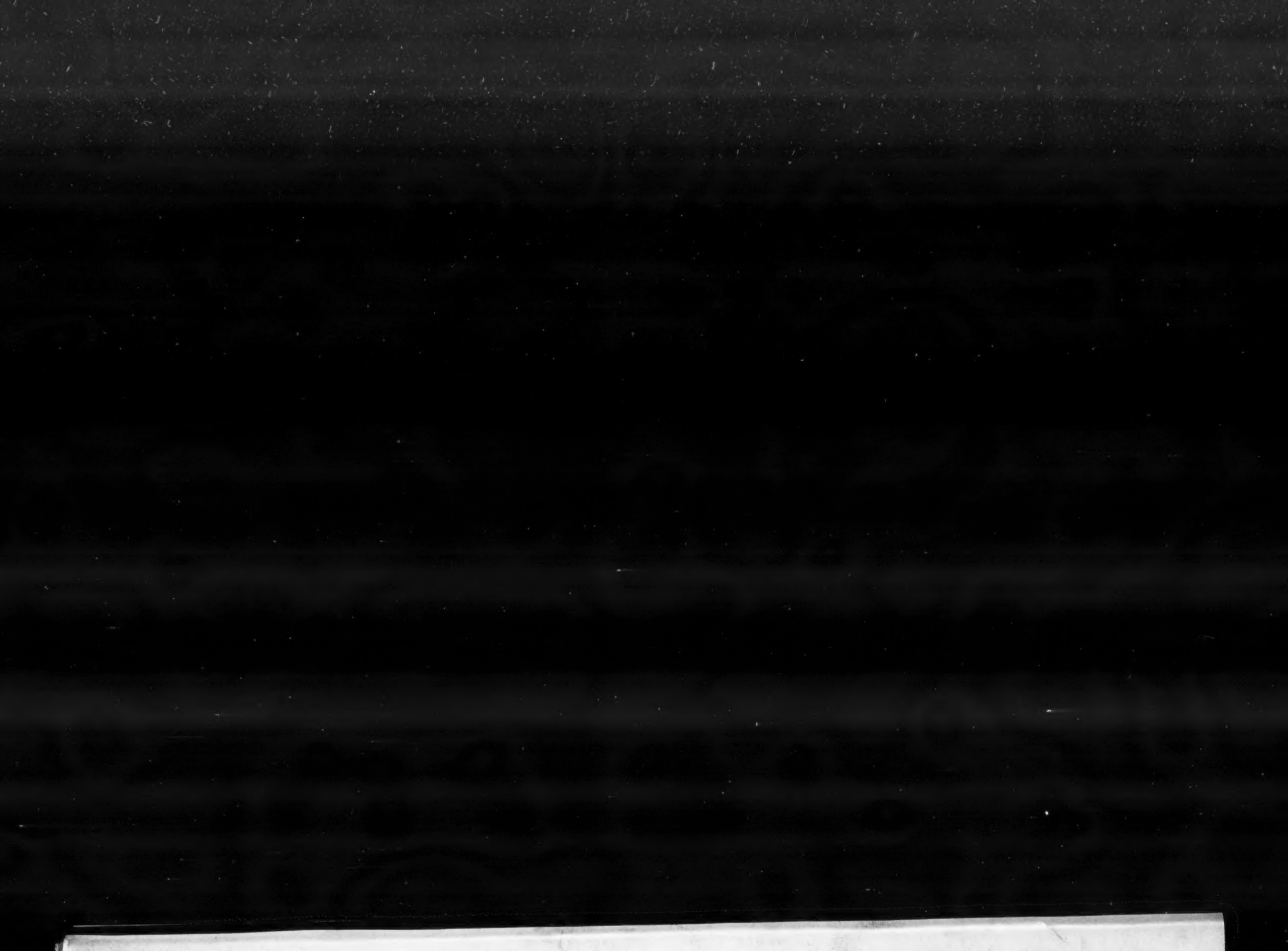
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